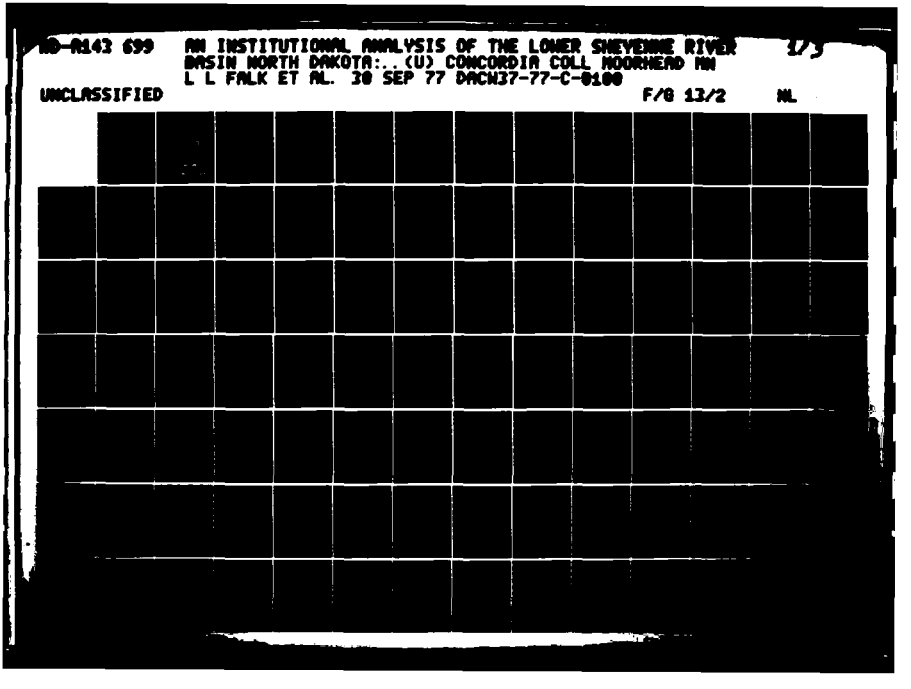
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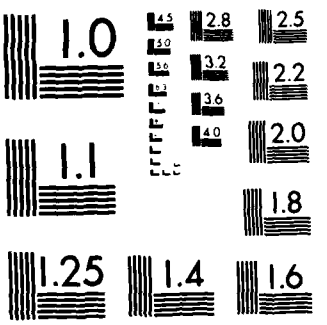

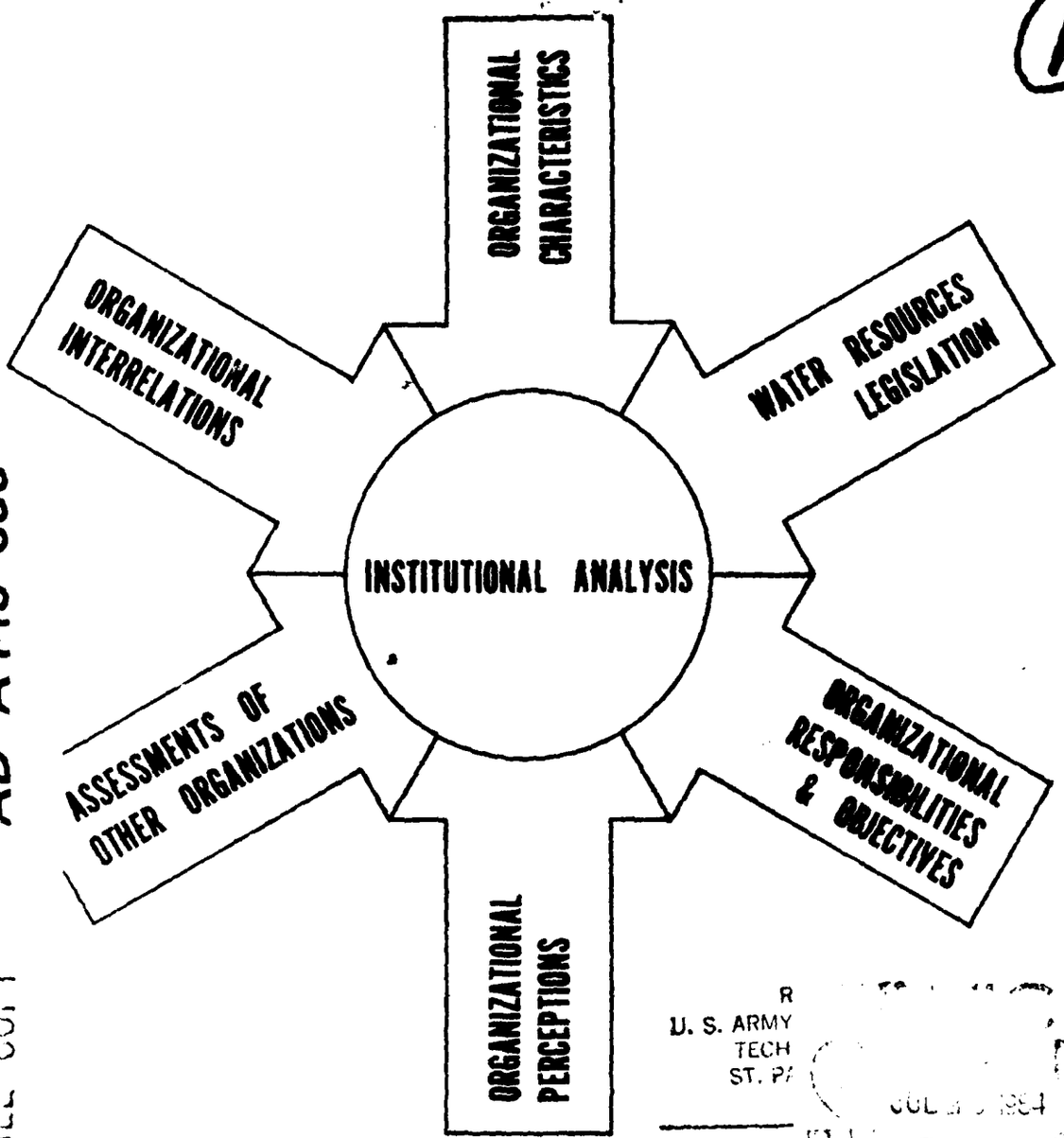

AN INSTITUTIONAL ANALYSIS OF THE LOWER SHEYENNE RIVER BASIN

ST. PAUL DISTRICT, CORPS OF ENGINEERS

DACW 37-77-C-0100

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The general purpose of this report is to provide information for determining the feasibility of water planning alternatives in the Sheyenne River Basin. Two questionnaires were designed for use in this study. The first was used to obtain profiles of 54 organizations related to water and related land resource management in the lower Sheyenne River basin. Results of these profiles are included. The second questionnaire was used to obtain more detailed information on 39 organizations also related to water and land use. Information is provided about these organization's goals and activities, their

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perceived water problems and proposed solutions. Laws relating to water and related land resource management are discussed. Copies of instruments, computer codes, research methodology and related information are included in this report.

INSTITUTIONAL ANALYSIS FOR THE LOWER SHEYENNE RIVER BASIN, NORTH DAKOTA: SHEYENNE RIVER VALLEY FROM BALDHILL DAM TO THE RED RIVER OF THE NORTH, NORTH DAKOTA

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Contract No. DACW37-77-C-0100
Department of the Army
St. Paul District, Corps of Engineers

September 30, 1977

FOREWORD

This institutional analysis for the Lower Sheyenne River Basin, North Dakota, was done in conjunction with our Phase I General Design Memorandum studies for flood control and related purposes for the Sheyenne River, North Dakota. The Phase I General Design Memorandum studies consist of a reevaluation of the water resource problems and needs of the basin and a reformulation of alternatives to meet these needs.

To assist in this process, the St. Paul District contracted with Concordia College, Moorhead, Minnesota, to conduct an analysis of organizations involved in water resources and related issues of the lower Sheyenne River basin. The intent of this analysis was to develop a readily understandable description and display of the issues, capacities, and relations among organizations involved in working with the water resources of the basin. This analysis was designed as a working document to assist persons involved in the resolution of basin water resources issues.

Mr. Charles Simpkins and Mr. David Miller of the St. Paul District were instrumental in the development of the Scope of Work for this contract and in working with the contractor, Concordia College, in its accomplishment. Their work responds to a challenge from study manager William Spychalla to develop a sound staff support function in the interest of increasing planning efficiency and speed.

By the efforts of these members of the St. Paul District and the work of the investigators at Concordia College and North Dakota State University, I am pleased to present you with this institutional analysis of the Lower Sheyenne River Basin.

Forrest T. Gay III

FORREST T. GAY III
Colonel, Corps of Engineers
District Engineer

ABSTRACT

The general purpose of this report is to provide information for determining the feasibility of water planning alternatives in the Sheyenne River basin to meet Reformulation Study requirements for the St. Paul District of the U.S. Army Corps of Engineers. Two questionnaires were designed for use in this survey. The first was used to obtain profiles of 54 organizations related to water and related land resource management in the lower Sheyenne River basin. Results of these profiles are included in the report. The second questionnaire was used to obtain more detailed information on 39 organizations also related to water and land use. Information is provided about these organizations' goals and activities, their perceived water problems and proposed solutions on their and other organizations. Laws relating to water and related land resource management are discussed. Copies of instruments, computer codes, research methodology and related information are included in the report.

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CHAPTER I

INTRODUCTION AND OVERVIEW OF FINDINGS

Definition of Institutional Analysis

In a general sense, "institution" encompasses at least two conceptual levels. In its broadest sense, institution refers to the major social categories such as the economic, political, education, religious, etc. (Hertzler, 1961, 77). At another level, "institutions" refers to those organizations within these broader social categories that more specifically organize human life around goals and values (Hertzler, 1961, 94). This study focused on the second level of institutional concepts.

Organizations have at least three basic dimensions which are 1) goals, 2) means of goal implementation, and 3) patterns of social interaction (Scott in Harris, Handbook 1964, 490). This general definition does not exclude voluntary associations from the study. Voluntary associations include goals, means and social systems with the added qualification that persons join the organizations voluntarily. Such organizations have long been recognized as part of the public decision-making process (McMahon and Camilleri, 1975). Specifically, the "Scope of Work" (Appendix F) stated that "the inventory will include informal voluntary associations and interest groups, as well as formalized organizations." In sum, this study defined institutions as including voluntary associations and those organizations and agencies interested in water resources in the lower Sheyenne River basin.

This study analyzed organizational goals, functions and objectives as indicated in the organizations' legal documents and as perceived by its officers. It also examined the officers' perceptions of other organizations and the officers' perceptions of their organization's interaction with other groups. The study examined organizations with interests in flood control, water supply, water quality, land use, floodplain regulation, fish and wildlife and other related natural resources in the lower Sheyenne River basin.

The Purpose and Authority of the Study

This study is part of a Reformulation Study by the U.S. Army Corps of Engineers of water problems in the lower Sheyenne River basin. An institutional analysis is required as part of this study, and the steps are defined in ER 1105-2-200, Multiobjective Planning Framework, and ER 1105-2-22, Planning Urban Studies Program. This requires 1) a list of organizations (in the interest areas indicated); 2) a description of (a) legal authorities, (b) policies, and (c) programs; and 3) indication of impediments and constraints set by organizations, political arrangements and customs.

Several criteria are stated for establishing feasibility of implementation. According to the "Scope of Work" these include 1) capability of existing institutions to meet plan requirements; 2) acceptability of changes in local arrangements and procedures involving functions or organizations and inter-organizational relations; 3) financial, legal, and technological feasibility; and 4) political and social acceptability. The purpose of this study is to provide

information for the application of these criteria to water interest organizations in the lower Sheyenne River basin. Research is under the auspices of the U.S. Army Corps of Engineers, St. Paul District, Contract No. DACW37-77-C-0100.

Brief Description of the Study Area Encompassed by the Lower Sheyenne River Basin

> The Sheyenne River is about 250 miles long beginning near the center of North Dakota and flowing generally eastward in an inverted arch until it joins the Red River of the North north of Fargo. The LSRB is primarily agricultural with 88 percent of the land being cultivated. Most of the remaining land is woodland, marshland and grassland. Only 1.6 percent is urban.
>
> The population in the river basin between Bald Hill Dam and the Red River was estimated to be 24,637 in 1974. The incorporated and unincorporated cities in the Lower Sheyenne River Basin are, in the order of their size: Valley City, West Fargo, Lisbon, Kindred, Horace, Harwood, Kathryn, Fort Ransom, Rogers, Hastings, Elliott, Berea and Anselm. Seventy-three percent of the lower basin residents live in cities (Falk, Attitudes and Social Characteristics of Farm and Rural Non-Farm Persons Living Adjacent to the Sheyenne River of North Dakota, 1977: 1).

The major portion of the research area lies in four counties. These are Barnes, Cass, Ransom and Richland Counties. The Census County Divisions that are partly included in the lower Sheyenne River basin are Northwest Barnes, Valley City East, Valley City West, Litchville, Southeast Barnes, Lisbon West, Lisbon-Enderlin Rural, Sandhills, Northwest Richland, Northeast Richland, Casselton South, Fargo South and Fargo North.

Introduction and Overview of the Narrative

The narrative reports on three portions of the institutional analysis. The first portion profiles 54 organizations involved in

water and related land resources in the lower Sheyenne River basin. The second portion examines water regulations effecting the basin. The third portion deals with 39 organizations profiled in depth that were involved in water and related land resources. The body of this report divides these portions into six chapters as follows: (Chapter 2) descriptive inventory of the 54 organizations profiled, (Chapter 3) a review of water resources and related land use legislation, (Chapter 4) organizational responsibilities, (Chapter 5) organizational perceptions, (Chapter 6) assessments of other organizations, and (Chapter 7) organizational interrelations. Here follows an overview of each of the chapters including summary tables of the findings.

Descriptive Inventory of Organizations. This chapter (2) examines the information gathered by the first instrument (Appendix B), mainly through phone interviews, of 54 organizations concerned with water and related land use. Because of the nature of the institutional assessment, a majority of the organizations surveyed were county and local governments. The kinds of organizations and number of each kind are independent government units (3), agency of the state government (1), agencies of the federal government (10), professional organizations (4), environmental groups (5), recreational group (1), county or local governments (25), and voluntary associations of government (5). All of these organizations agreed that they had a responsibility about water and related land use management in the lower Sheyenne River basin as prescribed by the "Scope of Work."

The organizations included both paid and voluntary workers. Thus, these organizations frequently had automatic linkages with other organizations or economic units through their workers'other vocations. Thirty-eight persons reported having occupational responsibilities in addition to those in the reporting organization. The persons reporting for their organizations were primarily officers in their organizations and had been with the organizations two or more years. More than 40 percent were with their organizations ten or more years. An important portion of the work in these organizations was done by voluntary staff. Some of these organizations, while not classified as such, are voluntary associations in practice.

The major purpose for profiling the 54 organizations was to learn the kinds of responsibilities and areas of responsibilities in water and related land use resources. Other information gathered included the relationship of the respondent's organization to other organizations, availability of charters, budgets, size of clientele and related information. Tables one and two contain this information.

Quite a number of the respondents said their organization did not have a charter (24 of 54). Also, a large number do not have published goals for their organizations (34 of 54). Twenty-two of the 54 respondents said that last year's budget was not available. Almost all of the respondents consider their organizations to be permanent (52 or 54). Thirty-four are subunits of larger organizations, and five have jurisdiction over other subunits. A majority of the organizations are subject to specific water and resource management regulations (40 of 54). The organizations have formal and legal ties as well as informal ones to other organizations and governmental units.

TABLE 1: SELECTED CHARACTERISTICS OF ORGANIZATIONS ASSOCIATED WITH WATER USE, QUALITY AND RELEVANT LAND USE IN FREQUENCIES

	Characteristics									
	Has Charter	Published Goals	Full-time Staff	Voluntary Staff	Specific Regulations	Organization Permanent	Organization a Sub-unit	Jurisdiction Other Units	Contact other Organizations	Available Budget
Total For All Fifty-Four Organizations	30	20	20	44	40	38	34	5	53	32

Source: From phone and personal interviews completed September, 1977.

Table 2 summarizes the kinds of responsibilities that these organizations have and whether the responsibility is in areas of quality, supply, land and water use, wildlife and flooding. No organization considered their primary relation to water use and related land use to be financial. The most frequent activity was planning (33 of 54) followed by resource use and control (23 of 54). About a fourth of the organizations saw their primary activities as regulation, public education, or lobbying. Nine were involved in research. Only three said a primary activity was legislation.

A majority of all organizations were involved in areas of quality, use, supply, flooding and related land use. About two-thirds of the respondents said their primary activities were quality (34),

water use (37), water supply (37) and flooding (39). The lowest category of activity was in wildlife with 23 of the 54 respondents considering this their primary area of activity. One concludes from this that there appears to be much less overlap in kind of responsibility than there is in area of responsibility. That is, even though these organizations have overlapping concerns in water and related land use resources, most of their responsibilities seem to be specialized. One exception to that is in planning.

TABLE 2: ORGANIZATIONAL RESPONSIBILITIES RELATIVE TO WATER RESOURCES AND MANAGEMENT AND RELATED LAND USE IN FREQUENCIES

	Functional Responsibility										Water Resource Interests					
	Financial	Regulation	Implementation	Operation	Planning	Legislative	Research	Public Education	Lobbying	Resource Use And Control	Quality	Use	Supply	Flooding	Wildlife	Land Use
Total For All Fifty-Four Organizations	0	13	10	6	33	3	9	15	12	23	34	37	37	39	23	46

Source: From phone and personal interviews completed September, 1977.

Organizational respondents reported on the specific goals and activities of their organization (Tables 3 and 4). The most frequently stated specific activities of organizations is in planning and zoning. The next most frequently stated activity is resource management, closely followed by public education. Implementation, regulation and policy

development are given as activities about equally in just over a fourth of the organizations.

TABLE 3: STATED ACTIVITIES OF PROFILED ORGANIZATIONS IN FREQUENCIES

	Activities						
	Education	Planning	Policy	Development	Management	Legal-Political	General Water and Land Use
Total For All Fifty-Four Organizations	18	31	15	14	19	10	14

Source: From phone and personal interviews completed September, 1977.

Activities and goals are not always closely parallel. However in many cases, goals and activities are not easily distinguishable. Some of the goals relate to mediation and coordination and seem to emerge from the historical experiences of the organizations. However, some of the smaller governments see their goals as similar to other smaller governments.

Funding sources are classified into major and minor (Table 5). Funding closely reflects the kind of organization. Six of the organizations have federal funds as their primary source, and three have state funds. However, local taxes predominate as a source of funds (27 organizations). Private sources are primary for 18 organizations. Federal funds are more likely than other sources to be mentioned as a minor source of funds (13 organizations).

TABLE 4: STATED GOALS OF PROFILED ORGANIZATIONS BY FREQUENCIES

	Goals						
	Education	Planning	Policy	Development	Management	Conservation	Legal and Political
Total For All Fifty-Four Organizations	7	22	2	13	18	9	29

Source: From phone and personal interviews completed September, 1977.

TABLE 5: MAJOR AND MINOR SOURCES OF FUNDING OF ORGANIZATIONS PROFILED

	Sources						
	Federal Appropriation	Federal Grants	State Appropriation	Local Tax	Private Gifts Memberships	Private Grants	Other Sources
Major Source for All Organizations	3	3	3	27	17	1	8
Minor Source for All Organizations	10	3	4	2	1	1	1

Source: From phone and personal interviews completed September, 1977.

Organizational networks are obviously important in the decision-making process. The profiled organizations most frequently have contact with county organizations (Table 6)(frequencies indicate the sum of

times different organizations in the category of organizations was mentioned). State and voluntary organizations were mentioned as contacts about equally. The frequency of contact closely reflects both the level of organizations surveyed and the kinds of organizations surveyed.

TABLE 6: KINDS OF ORGANIZATIONS CONTACTED BY PROFILED ORGANIZATIONS AND FREQUENCY THE ORGANIZATIONS ARE MENTIONED

	Kind of Contacted Organization						
	Federal	State	Regional	County	Voluntary	Association of Counties	Business and Industrial Development
Total Times Type of Organization Mentioned as Contact	28	43	16	66	42	1	1

Source: From phone and personal interviews completed September, 1977.

Only the total of the characteristics of profiled organizations are indicated in this introduction. The analysis divided the profiled organizations into five categories. The kind of organizations and the number in each category are as follows:

Non-Government State Level	(11)
Non-Government Regional Level	(9)
Regional Governments	(3)
County Governments	(18)
Local Governments	(13)

The characteristics differentiated by kind of organization are discussed in the body of this report.

Water and Related Land Use Legislation. Chapter three provides a synopsis of water and related land use legislation. Three levels of government have jurisdiction over water and related land use in the lower Sheyenne River basin. They are federal, state, and local governments. The federal government's legislation covers broad areas of water and related land resources use. The state government, especially the Water Commission and Department of Health, has specific regulations as well as legislation concerning water in general. Local governments are concerned with specific water and related land use rules and regulations only within jurisdictional boundaries.

Townships may influence water and related land resources through comprehensive zoning regulations. However, enforcement is possible only through court action. From those township ordinances reviewed, it is apparent that township zoning has been done primarily to preserve agricultural areas and the orderly placement of utility lines.

Municipalities have statutory authority to enact rules and regulations in areas such as in implementing land use or zoning ordinances, and promoting health and general welfare of citizens. They may contract to construct public works projects relative to pollution, water supply, conservation and control, and for sewage disposal and drainage.

There are several county boards, commissions, and districts with responsibility for regulating water and related land use management. County Park Boards have authority to regulate, supervise, control, and manage any water or land area for which the county has jurisdiction for park or recreational purposes. All of the four LSRB counties

(Barnes, Cass, Ransom and Richland) have park boards. Water Management Districts are the local organizations with the most authority for water and related land use decision making. They may sue and be sued, have the power of eminent domain and regulate water use.

Irrigation Districts and Flood Irrigation Districts may sue and be sued, may contract for construction, and have the power of eminent domain. Soil Conservation Districts may exercise the powers ordinarily exercised by a governmental subdivision of the state and have authority to institute land use regulations for conserving soil and water resources. County Superintendents of Public Health and Local Boards of Health have the authority to enforce all laws pertaining to life and health in the county. However, most county regulations are not concerned with water as an issue. Regional Planning Commissions have the same powers as are granted to counties, municipalities, or organized townships in planning and zoning. They have been active in assisting townships and other political subdivisions in preparing ordinances.

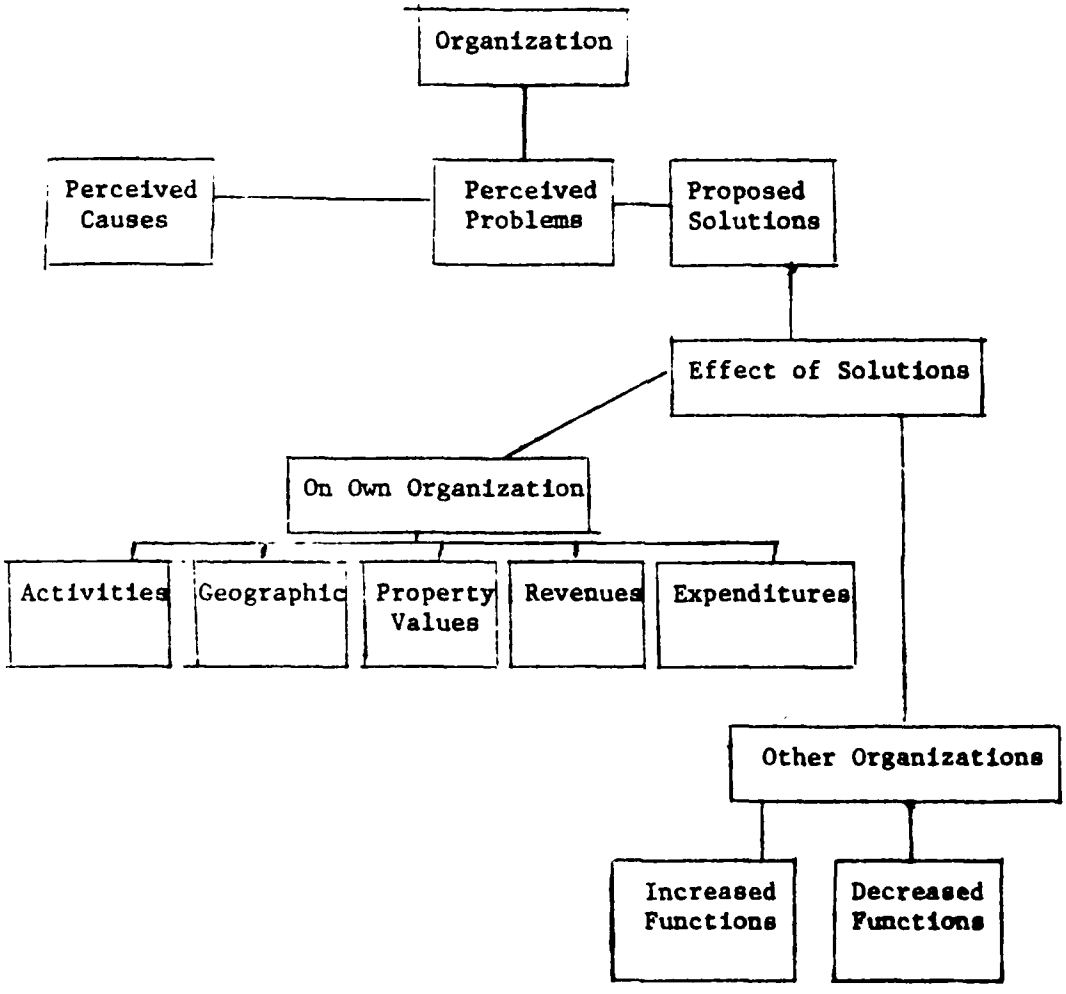
The two most prominent regulating agencies of the state are the State Water Commission and the State Department of Health. Others include the Outdoor Parks and Recreation Agency, Game and Fish Department, Geological Survey, and the Garrison Diversion Conservancy District. The State Water Commission is the primary agency of state government with nearly complete authority over and responsibility for water resources. The State Department of Health is responsible for regulating the quality of water throughout the state. The Outdoor Park and Recreation Agency is the planning and coordinating agency for related programs on all governmental levels. The Garrison Diversion Conservancy District was

established to develop and utilize land and water resources to enhance the economic welfare and prosperity of the people of North Dakota. The State Game and Fish Department promulgates rules and regulations regarding hunting and fishing in the state. The State Geological Survey is responsible for studying, mapping, monitoring, and analyzing the geologic resources of the state including its ores, waters and other useful materials. The State Planning Division serves in an advisory capacity to local and regional planning agencies.

Most water and related land use decisions in North Dakota can be made without reference to Federal legislation. In some instances, decision makers must consider federal statutes. Relevant legislation includes The Federal Water Pollution Control Act, The National Environmental Policy Act, The Flood Disaster Protection Act of 1973, The Safe Drinking Water Act, the Wild and Scenic Rivers Act and the Soil Conservation and Domestic Allotment Act.

Organizational Responsibility and Objectives. Chapter four of the narrative begins the discussion of the analysis of organizations interviewed in depth. Interviews were conducted with representatives of 39 organizations associated with water and related land use resources. The interviewer elicited responses about organizational activities and objectives for water and related land uses, their perceptions of water use and related problems, their solutions to these problems, the implications of these problems and solutions for other organizations, and their kinds of relationships with other organizations. Figure 1 provides a diagram of the model for assessing these perceived problems and solutions. The body of the report includes a detailed analysis of the responses.

FIGURE 1: MODEL FOR ASSESSING WATER PROBLEMS, THEIR CAUSES, THEIR SOLUTIONS AND EFFECT OF SOLUTIONS ON OWN ORGANIZATION AND OTHER ORGANIZATIONS AS PERCEIVED BY ORGANIZATIONAL REPRESENTATIVES



The general purposes of the 39 organizations is indicated in table 7. Seven of the organizations were alone in their category. Seven other organizations were in the category of managing water and land resources. Two other categories have four organizations each in

regional planning and in assisting townships. The remaining categories contain two or three organizations each. As would be expected from the major purpose of this institutional analysis, the highest concentration of organizations is in management of water-land resources.

TABLE 7: GENERAL PURPOSE OF ORGANIZATIONS BY ORGANIZATIONAL CATEGORIES

Purpose of Organization	Number of Organizations In Category
Statewide Planning-Coordination	1
Souris-Rainy-Red Planning-Coordination	1
Regional Planning	4
City Planning	3
Assisting Townships	4
Environmental Education	3
Encourage Political Participation	1
Administer-Develop Conservation	1
Manage Water-Land Resources	7
Regulate and Control Environment	3
Water Problems in Red River Basin	3
Provide Water to Rural Areas	1
City Government Services	3
Manage Fish and Wildlife	2
Manage Recreation Resources	1
Conserve Wildlife Resources	1
TOTAL	39

Source: From personal interviews completed September, 1977.

The respondents ranked the importance of various clientele groups for their organizations, and the general public ranked highest as the clientele group (See table 8). These are followed, in the order of their magnitude, by agriculturalist, recreationalist, small business and large business. The differences in emphasis on clientele do reflect the different purposes of the organizations.

TABLE 8: RESPONDENTS' ESTIMATES OF THEIR ORGANIZATIONS' IMPORTANCE TO CLIENTELE GROUPS AND DEGREE OF IMPORTANCE

Categories of Clientele Groups	Mean Rank*
General Public	4.77
Agriculturalist	4.21
Small Business	3.45
Large Business or Industry	3.32
Recreationalist	3.76

Source: From personal interviews completed September, 1977.

*Responses are 1 = not important to 5 = very important

Organizational objectives and activities were often not distinguishable among the responses. However, management-maintenance were the most frequently stated objectives and were closely followed by planning. Education-information and development were two objectives mentioned about equally. Enforcement and stabilization were infrequently stated as objectives. The frequency of kind of organizational activity varied somewhat from the frequency of the objectives since

several activities may implement one objective. The most frequently stated activity was development-improvement. This is followed in the order of their magnitude by planning, management-maintenance, education-information, and regulation.

The source of funds for these activities closely reflected the kind of organization the respondent represented. Sources of funds for the activities are in table 9. State level organizations are primarily funded by state and federal funds. Non-governmental organizations are funded by private sources. Regional organizations are funded by state and federal sources though federal funds are the primary sources. City organizations are supported by local funds and county-township governments by local funds with additional support by the federal government.

TABLE 9: SOURCES OF FUNDS FOR ACTIVITIES OF 39 ORGANIZATIONS

Source of Funds	Frequency of Source*
Federal	41
State	28
Local	17
Private	30
License Fees	4
No Response	14

Source: From personal interviews completed September, 1977.

*The 39 respondents indicated a total of 137 activities of their organizations though these are not all different activities. Sources of funding was indicated for each activity. In some cases more than one source was indicated and in other cases no source was indicated.

Organizational Perceptions. Perceptions about water problems and their causes were elicited from respondents in the 39 organizations and chapter 5 discusses these perceptions. Respondents suggested flooding, water supply and drainage about equally often as problems. Forms of pollution ranked fourth in frequency followed by water quality, environmental and recreational problems, conflict of interest and proper resource management. Problems in land use ranked highest as a perceived cause of these problems. Other frequently mentioned causes were characteristics of rivers, natural causes, agricultural practices, and amount of water use. Other suggestions were problems in regulation and governmental coordination, and general ecosystem mismanagement. Several specifically mentioned the proposed Kindred Dam as a problem cause.

The respondents suggested 39 different solutions to the problems they perceived. The solution most often suggested was impoundment. Other frequently suggested solutions included better zoning, better draining regulations, control of draining with gates and small dams, more study and opportunity given to citizen participation, diking, and better soil conservation practices.

The research model attempted to assess respondents' perceptions of the effect of solutions on their own organization and on other effected organizations (table 10). Few saw the solutions (if implemented) changing their jurisdictional area. However, they saw 88 of their solutions increasing their activities. Only one respondent thought their proposed solution would decrease their activities.

Fifty-eight of the solutions were seen as increasing the value of property and none as reducing property values. Similarly, they felt that 49 of their solutions would increase revenue and none would decrease them. Also, 53 of the solutions were seen as increasing expenditures and none as decreasing them.

TABLE 10: PERCEIVED EFFECTS OF SOLUTIONS AS GAINS OR LOSSES ON ACTIVITIES, GEOGRAPHIC AREA, VALUE OF PROPERTY, REVENUES AND EXPENDITURES

Kind of Effect	Gains or Losses			
	Gains	Losses	No Effect	Unknown
Organizational Activities	88	1	34	1
Geographic Jurisdiction	3	0	119	2
Value of Property	58	0	52	14
Revenues	49	0	67	8
Expenditures	53	0	66	5

Source: From personal interviews completed September, 1977.

Assessments of Other Organizations. In addition to stating their own activities and perceptions of activities relative to proposed solutions, respondents indicated how such solutions would effect other organizations. These assessments are discussed in chapter 6.

Very few of the proposed activities were seen as decreasing the activities for other organizations. Only three organizations were indicated in this category and these were the Army Corps of Engineers, Sheyenne Valley Association and private contractors and developers.

However, almost all proposed activities were seen as increasing activities for at least one other organization. The most frequently indicated organization in this category was the Army Corps of Engineers. Mentioned nearly as frequently was the Water Resource Council. Two other frequently mentioned organizations with perceived increased activities were Water and Drain Boards and the U.S. Soil Conservation Service. Other groups mentioned more than ten times was Bureau of Reclamation, State Health Department, and U.S. Forest Service. These respondents perceived that proposed changes will mean increased activities for some other organizations and for a few a good deal more. Few activity efficiences are seen in the form of decreased activities for other organizations.

Twenty-three of the 39 organizations anticipated involvement in a flood control study by the Army Corps of Engineers. Twenty-one said they would be involved directly and none said they definitely would not be involved either directly or indirectly. An important share of indirect involvement would come through the Lower Sheyenne Citizens Advisory Committee.

Organizational Interrelations. The last chapter of the narrative (Chapter 7) portrays the relationship of 39 organizations with other organizations. These 39 respondents reported having contact with 72 other organizations (in some cases individual organizations were combined into a category and count as one organization). The least frequent reason given for relationships with other organizations is reporting obligation (table 11). The most frequent kind of relationship is formal communication. Most organizations with formal

communication also communicate informally. Legally defined overlapping boundaries is rather frequently stated as a reason for interacting with other organizations. However, more organizations with overlapping boundaries interact by practice than by law. Even fewer interact because of similar activities as legally defined. Somewhat more organizations interact with other organizations because they have similar activities in practice. The communication network seems to be due more to practicality and interest than to some law defining the associations.

TABLE 11: KINDS OF INTERACTION AMONG ORGANIZATIONS AND FREQUENCY OF KIND OF CONTACT

Kind of Relationship	Frequency
Reporting Obligation	43
Formal Communication	235
Informal Communication	246
Geographic Overlap by Law	186
Similar Activities by Law	71
Similar Activities by Practice	89

Source: From personal interviews completed September, 1977.

Total number of contact organizations is 261 (These are not all different organizations).

The 39 organizations are subdivided into kinds of organization and analyzed more fully in the body of the report. The kinds of organization and the number in each category are as follows:

Organizations at state level	(11)
Non-government organizations	(10)
Regional Governments	(5)
City Governments	(7)
County and Township Governments	(6)

These categories constitute the primary basis of analysis of chapters 4-7.

Research Style and Assumptions

This research followed principles of investigation established by the social sciences. Research instruments are based on previous empirical research investigating attitudes and practices related to water use and quality. Responses are quantified where possible and analyzed through standard statistical techniques. The model for reporting is the American Sociological Review, the primary publication of the American Sociological Association.

General Methodology

The research procedure includes field surveying through phone and personal interviewing. It also included the acquisition of secondary sources, particularly legal documents, organizational charters, laws and regulations relative to water and related resources in the lower Sheyenne River basin. Agencies and organizations contacted were governmental (those serving local and regional areas) and voluntary associations with interests in the defined areas of research. Sampling of organizations was not random. Rather, organizations and associations were interviewed on the basis of their apparent and defined interests in water and land resources in the lower Sheyenne River basin. A detailed statement of methodology is in Appendix C.

CHAPTER 2

DESCRIPTIVE INVENTORY OF ORGANIZATIONS

Two separate instruments were used in the two-part study. The first instrument, the organizational profile, was used with 54 organizations. The second questionnaire for analysis of organizations was used in 39 interviews. A portion of the profiled organizations were interviewed in depth. The instruments were constructed to facilitate the integration of responses from the two parts of the study. Interviews were completed for 100 percent of the organizations sought for in-depth interviewing. Interviews were completed for 89 percent of the organizations sought for profiling (54 of 61). In a few cases, the interviewer was unable to arrange an interviewing time. Others were dropped from the profiling list when it was learned that the organizations' characteristics were not sufficiently unique or relevant to warrant profiling. Appendix B includes copies of the questionnaires. The methodology for the survey is discussed in Appendix C.

This chapter reports the findings of 54 organizations interviewed with the profile instrument. All of these organizations responded affirmatively when asked if they had concern or responsibility about water resource management and related land use (Q. 11). Thirty of the 54 were contacted by phone and the remainder were contacted through personal interviews. A list of the organizations profiled follows:

Audubon Society (AUDB)
North Dakota Wildlife Federation (NDWF)
Sierra Club (SIERR)
League of Women Voters (LWV)
North Dakota Stockman's Association (NDSA)
Natural Science Society (NSS)
North Dakota Farmers Union (NDFU)
North Dakota Farm Bureau (NDFB)
North Dakota Association of Soil Conservation Districts (NDASC)
Greater North Dakota Association (GNDA)
North Dakota League of Cities (NDLC)
Minn-Dak Farmers Flood Control Association (MDFFC)
Sheyenne Valley Association (SVA)
Sheyenne Valley Grazing Association (SVGA)
Southeast Cass Rural Water Users (SECRWU)
Barnes County Wildlife Federation (BCWF)
Tri-County Irrigation District (TCID)
Fargo Wildlife Club (FWC)
Kindred Gun and Wildlife Club (KGWC)
Lower Sheyenne Citizens Advisory Committee (LSCAC)
Lake Agassiz Regional Council (LARC)
Red River Regional Council (RRRC)
South Central Regional Council (SCRC)
Cass County Soil Conservation Service (CCSC)
Cass County Health Department (CCHD)
Southeast Cass Water Management Board (SEWMB)
Cass County Drain Board (CCDB)
Cass County Park Board (CCPB)
Cass County Planning Commission (CCPC)
Richland County Township Association (RICTA)
Richland County Park Board (RICPB)
Richland County Planning Commission (RICPC)
Ransom County Water Management Board (RACWMB)
Ransom County Park Board (RACPB)
Ransom County Planning Commission (RACPC)
Barnes County Water Management Board (BCWMB)
Barnes County Planning Commission (BCPC)
Cass County Township Officers Association (CCTOA)
Richland County Township Officers Association (RICTOA)
Ransom County Township Officers Association (RACTOA)
Barnes County Township Officers Association (BCTOA)
Fargo-Moorhead Metropolitan Council of Governments (FMCOG)
Fargo Planning Commission (FPC)
West Fargo Planning Commission (WFPC)
Kindred City Government (KCG)
Horace City Government (HCG)
Lisbon City Government (LCG)
Valley City Planning Commission (VCPC)
Reed Township (RT)
Harwood Township (HT)
Barnes Township (BT)
Stanley Township (ST)
Warren Township (WT)
Normanna Township (NT)

Classification of Organizations

The organizations profiled were categorized by area of jurisdiction. The categories and frequency in each category were:

State	(9)	
Regional	(9)	
County	(19)	
Township	(6)	
Municipal	(9)	
Multi-state, Regional	(2)	(this category emerged from the interviewing)
Total	(54)	

Because of the nature of the survey, county organizations were most frequently interviewed and include over a third of the organizations. Except for the emergent category, the remaining organizations are fairly evenly distributed among the other categories.

Almost half of the organizations were local governments when classified by primary interest. About a fifth of the organizations were civic or service and another tenth were environmental groups. Only one was primarily recreational. Four were professional organizations and the remainder were some other form of governmental unit.

The organizations surveyed included paid as well as unpaid workers. Consequently, respondents may have positions in the organization other than their primary occupation. Table 12 lists the office of the respondent relative to the organization included in the survey.

TABLE 12: OFFICE OF RESPONDENTS OF ORGANIZATIONS PROFILED IN THE SURVEY BY NUMBER

Office	Number
President, Chairperson, or Director	35
Vice President	2
Secretary	6
Treasurer	1
Non-officer	1
Designated Spokesperson*	9
Total	54

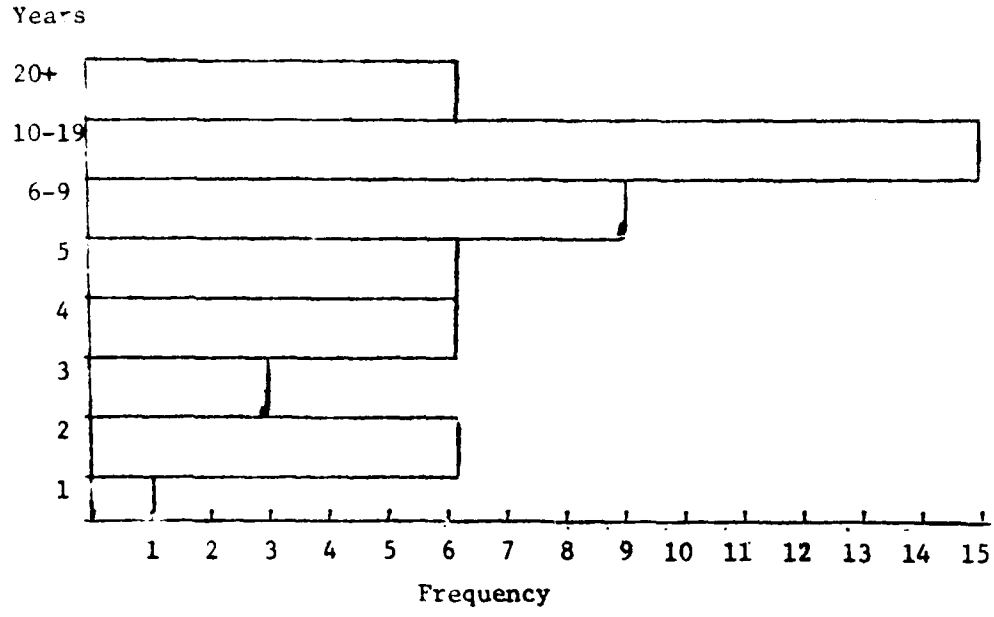
Source: From phone and personal interviews completed September, 1977.
*In nine instances officials preferred that other non-officers speak for the organization since they had special information about the organizations.

Characteristics of Respondents

An important portion of the respondents have vocations other than their position in the organization surveyed. Nearly half of this group were farmers. A variety of other occupations were indicated such as business manager, banker and engineer. In all, the respondents had fifteen different occupations.

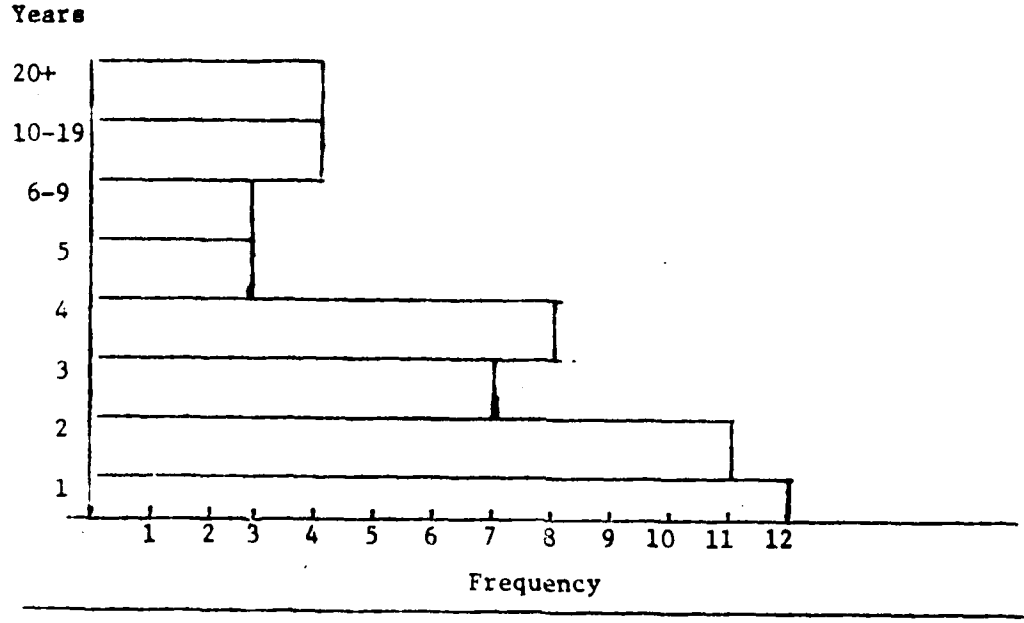
An indirect way of ascertaining respondent's knowledge and reliability about an organization is to determine the length of time the respondent has been with the group. Figure 2 indicates the length of time the respondent was with the organization and Figure 3 the length of time in his/her present position. Almost all respondents were with their organization two or more years and 21 were with their organization ten or more years. However, almost one-fourth were in their present position one year and an additional one-fifth two years. A large portion of the respondents are relatively new to their present position but have had a good deal longer time with the organization.

FIGURE 2: YEARS RESPONDENTS OF ORGANIZATIONS PROFILED WERE WITH THE ORGANIZATION



Source: From phone and personal interviews completed September, 1977. (Two persons did not respond to this question)

FIGURE 3: YEARS RESPONDENTS OF ORGANIZATIONS PROFILED WERE IN THEIR PRESENT POSITION



Source: From phone and personal interviews completed September, 1977. (Two persons did not respond to this question)

Selected Characteristics of Organizations

As previously stated, there are numerous ways of classifying organizations (For instance, see Hawley, 1950, Hertzler, 1961, Loomis, 1960, and Sanders, 1958). Given the distribution of organizations in this survey, the team decided to combine geographical jurisdictional dimensions with governmental and non-governmental aspects. The following analysis of organizational profiles includes these categories and number in each category.

Non-government state level	(11)
Non-government regional level	(9)
Regional governments	(3)
County governments	(18)
Local governments	(13)

These categories are as much a consequence of the practical requirements of the survey as they are theoretical applications. The remaining analysis of the profiled organizations utilizes this pragmatic classification of organizations.

Table 13, summarizes selected characterics of the profiled organization by kind of organizations. Table A-1 in Appendix A, provides these characteristics by organization.

Quite a number of respondents thought their organization did not have a charter (24 of 54). Also, a large number do not have published goals of their organization (34 of 54). Twenty-two of the 54 respondents said that last year's budget was not available.

TABLE 13 SUMMARY OF SELECTED CHARACTERISTICS OF ORGANIZATIONS ASSOCIATED WITH WATER AND RELATED LAND USE BY TYPE OF ORGANIZATION IN FREQUENCIES

Kind of Organization	Number Organizations	Characteristics									
		Has Charter	Published Goals	Full-time Staff	Voluntary Staff	Specific Regulations	Permanent Organization	Organization a Sub-unit	Jurisdiction Other Units	Contact other Organizations	Available Budget
Non-Government State	11	11	9	8	7	6	11	8	4	11	4
Non-Government Regional	9	5	3	2	9	4	8	3	0	9	3
Regional Governments	3	3	3	3	0	3	2	0	0	3	3
County Governments	18	5	2	3	17	14	18	18	0	17	14
Local Governments	13	6	3	4	11	13	13	5	1	13	8
Total	54	30	20	20	44	40	52	34	5	53	32

Source: From phone and personal interviews completed September, 1977.

An important portion of the work in all five categories of organizations is done by voluntary staff. In fact, only twenty of the organizations indicate having full-time staff. What emerges in this survey is the sizeable portion of organizations, though not classified as voluntary associations in its traditional use, that nonetheless are continued and operated by voluntary work. This is true in all categories of government here with the exception of regional governments (it is noted that only three of the organizations are in this category).

Almost all of the respondents consider their organization to be permanent with two not certain if their organization is permanent or not. Thirty-four of the organizations said they were sub-units of a larger organization. Five said they had jurisdiction over other sub-units. Forty of the respondents said their organization's activities are subject to specific regulations about water resources management and related land use. The regulations and their sources is discussed in the next chapter.

Organization Activities and Goals

Respondents were asked if their organization had any concern or responsibility about water resource management and related land use. All organizations included in the survey answered the question affirmatively as they would not be included in the survey otherwise. This question was followed by asking what was their primary area of activities relative to water and related land use. Table 14 summarizes the organizations' kinds of responsibilities and areas of interest. Detailed information on organizations' kinds and areas of responsibility are in table A-2 of Appendix A.

TABLE 14: ORGANIZATIONAL RESPONSIBILITIES RELATIVE TO WATER RESOURCES AND MANAGEMENT AND RELATED LAND USE IN FREQUENCIES BY KIND OF ORGANIZATION

Kind of Organization	Number in Category	Functional Responsibility										Water Resource Concerns					
		Financial	Regulation	Implementation	Operation	Planning	Legislative	Research	Public Education	Lobbying	Resource Use and Control	Quality	Use	Supply	Flooding	Wildlife	Land Use
Non-Government State Level	11	0	0	1	0	1	0	8	8	7	8	10	10	10	9	8	9
Non-Government Regional Level	9	0	0	0	1	3	0	0	4	3	8	8	8	8	4	7	8
Regional Governments	3	0	0	1	0	3	2	0	2	1	2	3	3	3	3	2	3
County Governments	18	0	7	6	4	14	1	1	1	1	2	9	10	9	13	6	15
Local Governments	13	0	6	2	1	12	0	0	0	0	3	4	6	7	10	0	11
Total	54	0	13	10	6	33	3	9	15	12	23	34	37	37	39	23	46

Source: From phone and personal interviews completed September, 1977.

No organization considered their primary relation to water use and quality and related land-use to be financial. The most frequent activity was planning (33) followed by resource use and control (23). About a fourth of the organizations saw their activities as regulation, public education, or lobbying. Nine are involved in research. Only three said a primary activity was legislation.

Relative to the areas of responsibility, about two-thirds of the respondents said their primary activities were related to quality, use, supply and flooding (table 14). The highest proportion (46) reported water related land-use as their primary activity. The lowest category of activity was in wildlife with 23 of the 54 respondents considering this their primary area of activity. Local and county governments reported fewer activities associated with water quality, use and supply than did other levels of government.

The respondents were asked to state the goals and activities of their organizations. Questions were open-ended, and the consequent categories are summarized in table 15. Detailed goals and activities by organization are in table A-3 of Appendix A. Planning was the most frequently stated activity and occupied over half of the organizations. Education and management were activities of about a third of the organizations, and development and policy making were activities in about a fourth of the organizations. Legal-political activities were activities of about one-fifth.

Goals and activities appeared to be somewhat distinct entities though activities and goals were more closely paralled in local governments than they were in the other four categories of governments.

Some of the emergent goals relate to mediational and coordinating kinds of functions. This was particularly true of regional governments which likely reflected the historical process and development of regional governments. However, some of the county governments also saw these kinds of functions as their goal.

Sources of Funds

Funding sources were classified into major and minor. Respondents were provided with a list of possible funding sources. Respondents used the same list for both major and minor sources and could indicate more than one source in each classification. A summary of the responses are in Table 16. Sources by organization are in Table A-4 of Appendix A.

The responses were reflective of government and non-government organizations. Non-government state level organizations were primarily funded by private gifts and memberships. Only one received federal funds (Table 9). Non-government regional organizations were also mostly funded by private gifts and memberships. Two received state or federal funds. Regional governments received funding from the various levels of government. County governments were almost entirely funded by local taxes as were local governments. However, local governments were likely to report federal appropriations as a minor source of funds.

TABLE 15: STATED ACTIVITIES AND GOALS, IN FREQUENCY, OF PROFILED ORGANIZATIONS BY KIND OF ORGANIZATION

Kind of Organization	Number	Activities							Goals						
		Education	Planning	Policy	Development	Management	Legal-Political	General water and Land Use	Education	Planning	Policy	Development	Management	Conservation	Legal-Political
Non-Government State	11	8	2	8	2	3	8	0	6	1	1	0	0	7	10
Non-Government Regional	9	4	3	5	3	3	0	0	1	2	1	0	3	2	3
Regional Government	3	2	7	0	0	0	0	0	0	0	0	3	0	0	6
County Government	18	4	7	1	4	10	2	7	0	5	0	3	9	0	8
Local Government	13	0	12	1	5	3	0	7	0	14	0	7	6	0	2
Total	54	18	31	15	14	19	10	14	7	22	2	13	18	9	29

Source: From phone and personal interviews completed September, 1977.

TABLE 16: SUMMARY OF MAJOR AND MINOR SOURCES OF FUNDING OF PROFILED ORGANIZATIONS IN FREQUENCY

Kind of Organization	Major Source of Funding							Minor Source of Funding						
	Federal Appropriation	Federal Grants	State Appropriations	Local Tax	Private Gifts Memberships	Private Grants	Other Sources	Federal Appropriation	Federal Grants	State Appropriation	Local Tax	Private Gifts Memberships	Private Grants	Other Sources
Non-Government State	0	0	0	0	11	1	2	1	1	0	0	0	0	0
Non-Government Regional	0	1	1	0	6	0	3	0	0	0	0	1	1	0
Regional Governments	1	2	1	1	0	0	0	0	0	1	1	0	0	0
County Governments	1	0	0	14	0	0	3	0	1	0	0	0	0	1
Local Governments	1	0	1	12	0	0	0	9	1	3	1	0	0	0
Total	3	3	3	27	17	1	8	10	3	4	2	1	1	1

Source. From phone and personal interviews completed September, 1977.

Contact Among Organizations

Respondents were asked "Does your organization have contact with other organizations as a part of its activity?" A summary of the kinds of organizational contacts are in Table 17 and in Table A-5 of Appendix A. Table A-5 gives the organizations profiled and the organizations with which they have contact. Quite obviously, some organizations have broader contact than others, and this varies by type of organization. County governments are the most frequently contacted organizations. They are closely followed by the State Water Commission. Other frequently mentioned organizations are the State Health Department, Lake Agassiz Regional Council, County Water Drain Boards, City Governments, and the Army Corps of Engineers. Twenty-two of the organizations were mentioned only once as contact organizations.

TABLE 17: KINDS OF ORGANIZATIONS INDICATED AS HAVING CONTACT WITH THE RESPONDENT'S ORGANIZATION IN FREQUENCIES

Kind of Respondent's Organization	Number	Kind of Contact Organization						
		Federal	State	Regional	County	Voluntary	Association of Counties	Business and Industrial Development
Non-Government State	11	8	15	2	0	24	0	0
Non-Government Regional	9	6	8	3	9	10	0	0
Regional Government	3	1	7	0	6	0	0	0
County Government	18	7	15	5	23	6	1	0
Local Government	13	6	8	6	28	2	0	1
Total	54	28	53	16	66	42	1	1

Source: From phone and personal interviews completed September, 1977.

CHAPTER THREE

[illegible] WATER AND RELATED LAND USE LEGISLATION*

Three levels of government have jurisdiction over water and related land use in the Lower Sheyenne River Basin (LSRB). They are the federal, state, and local governments. The federal government's legislation covers broad areas of water and related land resources use. The state government, especially the Water Commission and Department of Health, has specific regulations as well as legislation concerning water in general. Local government entities are concerned with specific water and related land use rules and regulations only within their jurisdictional boundaries. For a general location of [illegible] see Figure 4.

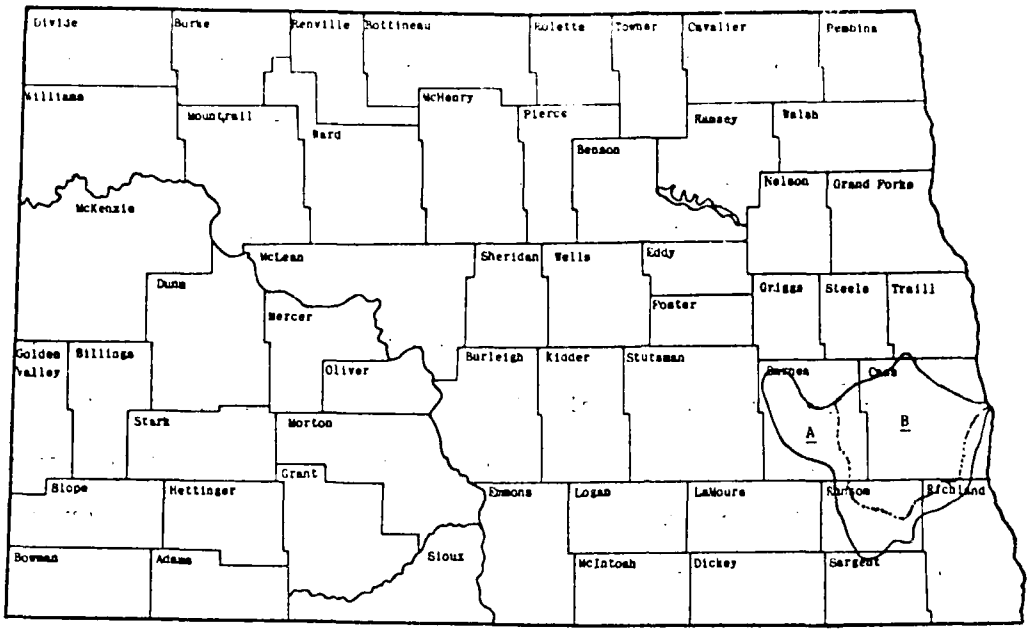
Local Government Rules and Regulations

Township Government. Townships may influence water and related land resources through their authority to establish comprehensive zoning regulations (NDCC 58-03-11).** Enforcement, however, is [illegible] through court action (NDCC 58-03-14) leaving townships with police powers for their zoning ordinances. Land use zoning can be an important tool in flood damage prevention as well as for controlling runoff. As of this date, twenty-nine townships in the LSRB have enacted zoning ordinances (Table 12) with several more in the process of drafting ordinances. Townships are indicated in Figure 5.

*This synopsis was compiled following discussions with Mr. Murray Sagsveen, Special Assistant Attorney General, State Water Commission and Mr. Robert Conklin, Lake Agassiz Regional Council. Several county, city, and township officers were also contacted regarding the input in this section.

**Refer to the North Dakota Century Code.

FIGURE 4: LOWER SHEYENNE RIVER BASIN AREA IN NORTH DAKOTA



The Lower Sheyenne River Basin in North Dakota:

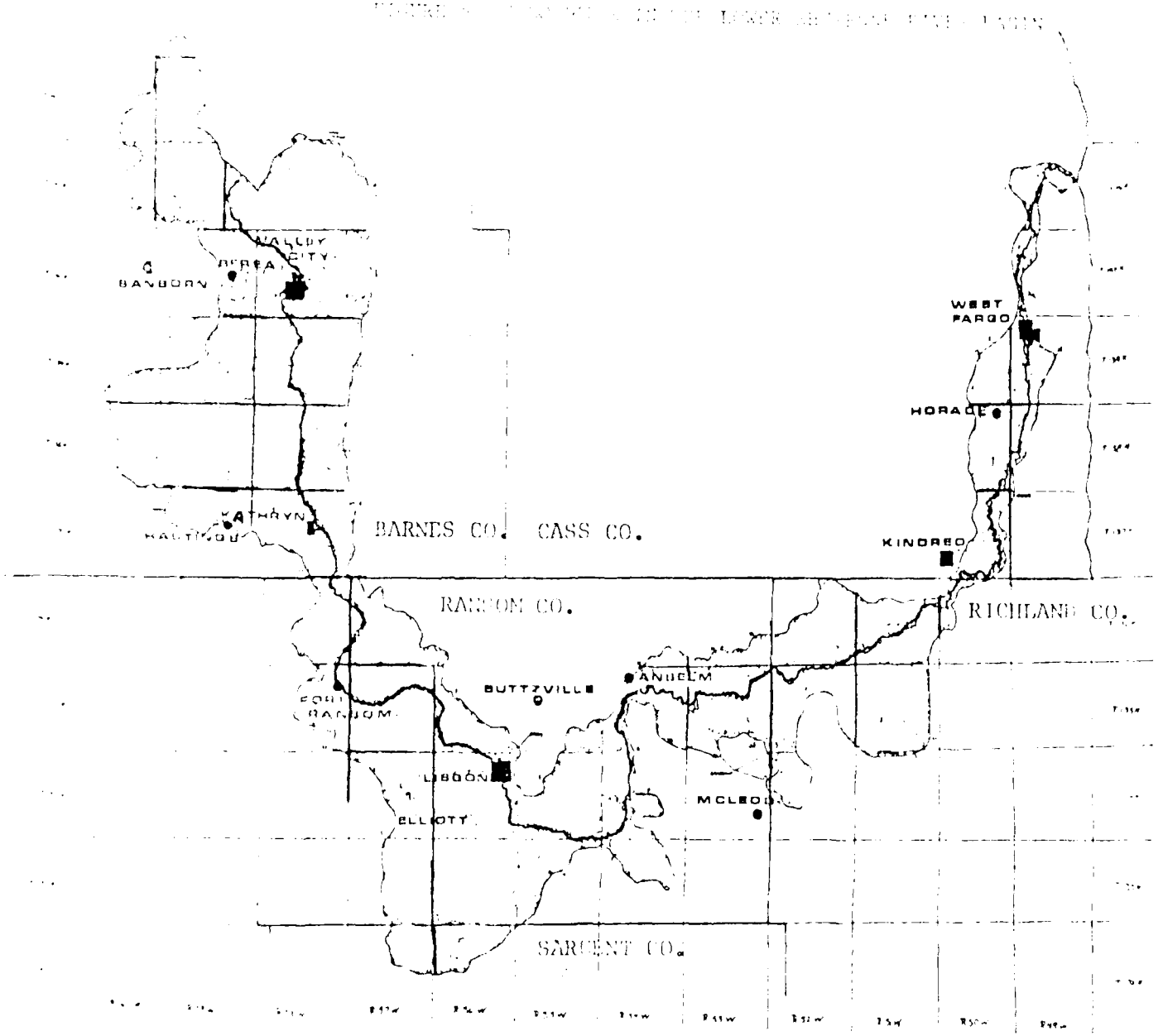
B = Maple River Subbasin

A = Lower Sheyenne River Subbasin

TABLE 18: LSRB TOWNSHIPS WITH ZONING ORDINANCES AS OF AUGUST 1, 1977

County	Township[a]
Cass	Harwood, Reed, Barnes, Mapleton, Stanley, Warren, Pleasant, Normanna
Barnes	Thordenskjold, Oak Hill, Norma, Nelson, Cuba, Marsh, Alta, Valley City, Hobart, Getchell, Stewart, Ashtabula, Rogers Edna, Dazey
Richland	Viking, Garborg, Sheyenne, Freeman, Helendale, Barrie
Ransom	NONE (County zoning)

[a]Underscored townships are those which the Sheyenne River transverses.


BARNES CO.
CASS CO.
RANSOM CO.
RICHLAND CO.
SARGENT CO.
BANBURY
KATHRYN
BUTTZVILLE
LISBON
ELLIOTT
MCLEOD
HORACE
WEST FARGO
KINDRED

Several township zoning ordinances were reviewed for their content. From those reviewed it is apparent that township zoning has been primarily to preserve agricultural areas and allow for orderly placement of utility transmission lines.[1]

Municipal Government. Municipalities have statutory authority to enact rules and regulations in several areas related to water and related land use. They may implement land use or zoning ordinances (NDCC 40-05-02.13) to promote health and general welfare of their populace. Of the eight incorporated cities in the LSRB, four--Kindred, Lisbon, Valley City and West Fargo--have enacted zoning ordinances. (For a list of municipalities and their populations see Table 13). Elliott is zoned by Ransom County's ordinance. Municipal zoning is done primarily to promote orderly development. It came into existence in part because of the Federal Insurance Administration's Flood Disaster Protection Act of 1973 requiring flood plain zoning to be eligible for federal flood insurance.

Municipalities may contract to construct public works projects to prevent pollution of their water supply, for water conservation, for flood control, for sewage disposal, or for drainage (NDCC 40-05-01). This must be carried out in a manner consistent with the rules and regulations of the State Department of Health and the State Water Commission, which are discussed later.

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[1] Discussions with Mr. Robert Conklin, Lake Agassiz Regional Council, whose office assisted in preparation of many of the township zoning ordinances confirmed the hypothesis that zoning has been accomplished mainly to protect agricultural areas.

TABLE 19: MUNICIPALITIES IN THE LOWER SHEYENNE RIVER BASIN

Municipality	Population	Form of Government
Valley City	7,843	Commission
West Fargo	6,437	Commission
Lisbon	2,090	Mayor/Council
Kindred	495	Mayor/Council
Horace	400	Mayor/Council
Harwood	165	Mayor/Council
Kathryn	110	Mayor/Council
Fort Ransom[a]	100	Informal
Rogers	96	Mayor/Council
Hastings[a]	60	Informal
Elliott	50	Mayor/Council
Berea[a]	10	None
Anselm[a]	6	None

[a]Unincorporated

The city's health officer has the power and responsibility to enforce the health ordinances of the city, the State Department of Health, the city board of health, and the health laws of the state (NDCC 23-04-05). Of particular significance are the "Solid Waste Management Regulations"[1] (R23-29-01, R23-01-07), and the "Regulations for Public Water Supply Systems"[2] (R61-28.1).

[1]Appendix D, North Dakota State Department of Health, Solid Waste Management Regulation.

[2]See Appendix D, North Dakota State Department of Health, Regulations for Public Water Supply Systems.

County Government. There are several county boards, commissions, and districts with responsibility for regulation or coordination of water and related land use resource management. The board of county commissioners is given the power to regulate the use of property through zoning ordinances (NDCC 11-33-01) and the authority to plan the orderly development of the county by creating county planning commissions (NDCC 11-33-04). Ransom County is the only county with county instituted zoning, while all four LSRB counties have planning commissions and comprehensive plans.

County Park Boards have authority to regulate, supervise, control, and manage any water or land area for which the county has jurisdiction for park or recreational purposes (NDCC 11-28). Their responsibilities are similar to those of the water management district in their involvement in recreational activity (DeKrey, 1977:46).

Rules and regulations of county park boards, inside parks and within a ½ mile radius, are enforced by the police, constables and sheriff (NDCC 11-28-05.7). County park boards have the power of eminent domain which permits them to acquire necessary property to establish park areas (NDCC 11-28-05.11). All four LSRB counties have park boards.

Water Management Districts are the local political entity with the most authority for water and related land use decision making. Water management district boundaries usually conform with county boundaries. The Southeast Cass County Water Management District is an exception--its jurisdiction is the Southeast portion of Cass County. Barnes, Ransom, and Richland Counties all have county-wide districts (Table 13).

TABLE 2: WATER MANAGEMENT DISTRICTS IN THE LSRB

Name	Date Created	Jurisdiction
Southeast Cass County No. 720	July 1960	SE corner of Cass Co.
Barnes County No. 1360	Sept. 1964	Barnes County
Ransom County No. 1529	Aug. 1970	Ransom County
Richland County No. 715	Aug. 1958	Richland County

Source: Ayers and Beck, 1972; DeKrey, 1977.

Some of the powers and duties of the board of commissioners of water managment districts are similar to other local political subdivisions. They may sue and be sued in their name (NDCC 61-16-11.1), have the power of eminent domain (NDCC 61-16-11.2), and may regulate water and related land use (NDCC 61-16-11.8). They may levy a tax (not to exceed 3 mills), own property, and issue warrants to finance construction. Construction projects of water management districts may be for water conservation and supply, flood control, drainage, sewage treatment, or any combination thereof. They must resort to court action for enforcement of their rules and regulations.

Water management districts work closely with several other institutions dealing with water and related land resources. They work most closely with the State Water Commission on projects involving drainage and flooding.[1] Ayers and Beck (1972:380) commented on the cooperative efforts of water management districts: "While there may be ten to twenty institutions that deal with water in North Dakota in a given area, the water management district is able to cooperate with these institutions and solve its water problems."

The responsibilities of most county Drain Boards were assumed by water management districts pursuant to NDCC 61-16-11 and 61-21-65 which

[1] See DeKrey, 1977, for a discussion of the activities of water management districts in North Dakota.

allowed them to consolidate. Although some drain boards still exist, most have been consolidated with water management districts. Richland and Ransom County's water management districts have formally taken control of all drains and drainage work within those counties (Beck and Bohlman, 1971). Barnes County's Drain Board and Water Management District have consolidated, while Cass County still has an active drain board.

Irrigation Districts (NDCC 61-05-07) and Flood Irrigation Districts (NDCC 61-12) are formed by interested land owners in any geographical area. The districts need not be coincident with existing political boundaries. They possess all the powers and duties usual to corporations organized for public purposes (NDCC 61-07-01.6). And, as such may sue and be sued (NDCC 61-07-01.3), may contract for construction (NDCC 61-07-01.4), and have the power of eminent domain (NDCC 61-07-01.6). The Tri-County Irrigation District organized in April, 1968, consists of landowners of 88,000 acres in Cass, Ransom, and Richland Counties and is the only one in the LSRB.

Soil Conservation Districts, authorized by NDCC 4-22, may exercise the powers ordinarily exercised by a governmental subdivision of the State. They have the specific authority to institute land use regulations (NDCC 4-22-30) for conserving soil and water resources. They are limited in their activity, however, since they are without taxing, bonding, or assessment powers (DeKrey, 1977). Soil conservation districts are organized on county boundaries. The four LSRB counties each have organized districts. None of which have instituted land use regulations, however.

County Superintendents of Public Health and Local Boards of Health have the authority to enforce all laws, rules, and regulations pertaining to the life and health of the people of the county (NDCC 23-03-07 and 23-05-01). Cass County, for example, has enacted a set of ten rules and regulations regarding health and welfare. Numbers six and ten deal with

sewage disposal and are aimed at preventing health hazards.[1] Most county and city health regulations cover routine matters and are not concerned with water as an issue.

Regional Planning Commissions have the same powers as are granted to counties, municipalities, or organized townships in matters of planning and zoning (NDCC 11-35-01). There are two state planning regions in the LSRB--the Lake Agassiz Regional Planning Council, of which Cass, Ransom, and Richland Counties are a portion; and the South Central Regional Planning Council, of which Barnes County is a part--and the Fargo-Moorhead Metropolitan Council of Governments. Serving primarily as clearinghouses for planning activities, these three agencies have not enacted any zoning rules or regulations. They have been active in assisting townships and other political subdivisions in preparing ordinances.

Summary

Local government in the LSRB--township, municipal, and county--is concerned primarily with issues of more local significance than water and related land uses as a general issue. Local governments become involved with water and related land use policy primarily through their powers to zone. They are not actively involved in regulating water and related land use except through water management districts and to some extent local health boards. The state agencies--the Water Commission and the Department of Health--have enacted sufficiently comprehensive rules and regulations that it apparently has not been necessary for their local counterparts to enact further rules or regulations.

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[1] See Appendix D, Cass County Board of Health, Health Department Regulations.

State Government Rules, Regulations, and Legislation

There are several agencies of state government whose powers and duties entail regulating or coordinating water and related land use management. The two most prominent regulating agencies are the State Water Commission and the State Department of Health. Others include the Outdoor Parks and Recreation Agency, Game and Fish Department, Geological Survey, and the Garrison Diversion Conservancy District. The State also has some general laws that apply to water and related land resources.

Regulatory Agencies. Wise use and re-use of water in North Dakota is the primary concern of the State Water Commission, the primary agency of state government with nearly complete authority over and responsibility for water resources. NDCC 61-02 establishes the Water Commission as the agency empowered to manage water statewide in North Dakota. Subsection 61-02-01 states:

> Water conservation, flood control, and abatement of stream pollution declared a public purpose.--It is hereby declared that the general welfare and the protection of the lives, health, property, and the rights of all the people of this state require that the conservation and control of waters in this state, public or private, navigable or unnavigable, surface or subsurface, the control of floods, and the regulation and prevention of water pollution, involve and necessitate the exercise of the sovereign powers of this state and are affected with and concern a public purpose. It is declared further that any and all exercise of sovereign powers of this state in investigating, constructing, maintaining, regulation, supervising, and controlling any system of works involving such subject matter embraces and concerns a single object, and that the state water conservation commission in the exercise of its powers, and in the performance of all its official duties, shall be considered and construed to be performing a governmental function for the benefit, welfare, and prosperity of all the people of this state.

North Dakota has--since the first statewide plan for water resource conservation in 1937--been managing its water resources on a statewide basis as reflected in the present North Dakota Interim State Water Resources Development Plan. This may explain why local governments have not enacted water and related land use regulations.

The basis for the state's rules and regulations regarding water is North Dakota Water Laws[1] (State Water Commission, 1973, with 1975 changes). The Water Laws contain those portions of the North Dakota Century Code that pertain to water and related land resources.

Pursuant to NDCC Chapter 61 the Water Commission enacted Rules and Regulations of the State Water Commission governing the Drainage of Water From Ponds, Sloughs, or Lakes Having Watersheds of 40 Acres or Larger[2] to regulate drainage through a permit system. The administration of this system is carried out in cooperation with local water management districts. When matters of drainage affect more than one district, would be of statewide significance, or locally unresolvable legal questions arise, the Water Commission attempts to resolve the problem.

A permitting system also exists for appropriation of water as authorized by NDCC 61-04. The State Engineer (head of the Water Commission) has the authority to approve or deny water use permits. A set of regulations on appropriation of water is currently being prepared by the Water Commission.

The State Department of Health is responsible for regulating the quality of water throughout the state (NDCC 61-28). It can formulate standards for water quality, make rules and regulations to enforce those standards, and initiate court action to enforce their rules and regulations.

The principal water quality regulation is Standards of Water Quality for State of North Dakota,[3] issued April 28, 1977, by the State Department of Health. The Standards, adopted pursuant to NDCC 61-28-02, are intended to maintain and improve the quality of waters in the state and to maintain

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[1] See Appendix D, North Dakota State Water Commission, North Dakota Water Laws.

[2] See Appendix D, North Dakota State Water Commission, Rules and Regulations of the State Water Commission.

[3] See Appendix D, North Dakota State Department of Health, Standards of Water Quality for State of North Dakota.

and protect existing water uses. The benchmark water quality is that in existence when the first Standards were established in 1967, or that of a later date if water quality improved. The 1977 Standards set general requirements and conditions for all waters in the state and specific standards for designated classes of waters in the state. Individual river basins, subbasins, and tributaries, as well as individual lakes are classified.

Within the LSRB, the Sheyenne River and Clausen Spring are classified IA:

> 02.602 Class IA Streams The quality of this class of waters shall be such that its uses shall be the same as those identified for Class I, except that treatment for municipal use may also require softening to meet the chemical requirements of the North Dakota State Department of Health. The physical and chemical criteria shall be those for Class I, with the following exceptions: . . .
>
> 02.601 Class I Streams The quality of waters in this class shall be such as to permit the propagation and/or life of resident fish species and shall be suitable for boating swimming, and other water recreation. The quality shall be such that after treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the treated water shall meet the bacteriological, physical, and chemical requirements of the State Health Department for municipal use. The quality of water shall be such as to permit its use for irrigation, stock watering, and wildlife use without injurious effects.

The discharge of pollutants into the waters of North Dakota is regulated by the Health Department through its Rules and Regulations for The North Dakota Pollutant Discharge Elimination System R61-28-100 through 129.[1] The enactment of this set of rules is required pursuant to the provisions of Section 402(b) of the Federal Water Pollution Control Act (FWPCA). The rules generally set up a system of permitting and monitoring pollutant discharge.

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[1] See Appendix D, North Dakota State Department of Health, Rules and Regulations for the Pollutant Discharge.

The Guidelines for The Control of Pollution From Certain Livestock Enterprises[1] were enacted by the Health Department pursuant to NDCC 61-28-01 to protect the state's waters from concentrated feeding or feedlot operations runoff. An approval system is used along with a set of standards.

Regulations for Public Water Supply Systems, Regulation R61-28.1[2] of the Health Department sets standards for public water supply systems as well as guidelines for their siting, construction, and operation.

Planning, Coordinating, or Other Interested Agencies. The Outdoor Park and Recreation Agency is the planning and coordinating agency for related programs on all governmental levels, encouraging the full development of existing and future acquisition of outdoor recreation areas (NDCC 53-07-01). Although this agency's function is not regulatory, its input is important in water and related land use management decisions. The Agency has a Comprehensive Outdoor Recreation Plan which is updated every five years.

The Garrison Diversion Conservency District was established by NDCC 61-24 to develop and utilize land and water resources to enhance the economic welfare and prosperity of the people of North Dakota. They do not have any rules or regulations regarding water or related land use outside of their own organization. To implement their district's irrigation plans they have the power of eminent domain, can sue or be sued, and can levy a tax.

The State Game and Fish Department, created by NCDD 20-02, promulgates rules and regulations regarding hunting and fishing in the state. They do not have any regulatory authority over water and related land resources in general but have a keen interest in its use as it relates to their function.

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[1]See Appendix D, North Dakota State Department of Health, The Guidelines for the Control of Pollution From Certain Livestock.

[2]See Appendix D, North Dakota State Department of Health, Regulations for Public Water Supply.

The State Geological Survey, created by NDCC 15-11, is responsible for studying, mapping, monitoring, and analyzing the geologic resources of the state including its ores, waters, and other useful natural materials. It has no regulations concerning water or related land resource use, but cooperates with the State Water Commission and the State Department of Health by providing them with necessary geological information.

The State Planning Divison (NDCC 54-34.1) serves in an advisory capacity to local and regional planning agencies. It provides assistance in planning/zoning functions, and although it has authority to enact its own zoning regulations, has not done so.

Other State Laws

The "Environmental Law Enforcement Act of 1975"[1] (NDCC 32-40) permits " . . . any state agency, with the approval of the Attorney General; any person; or any county, city, township, or other political subdivision, aggreived by the violation of any environmental statute, rule or regulation . . ." the right to initiate court action.

The power of eminent domain, granted to most political subdivisions, is the right to " . . . acquire for a public use any property or right existing when found necessary for the application of water to beneficial uses, . . ." (NDCC 61-01-04). Eminent domain may be used by almost any political or private institution in the LSRB to acquire necessary property to implement public water projects (NDCC 32-15).

Summary

The North Dakota Water Laws administered primarily by the State Water Commission (quantity) and the State Department of Health (quality) constitute the majority of significant water and related land use

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[1]See Appendix D, The Environmental Enforcement Act of 1975.

legislation at the state level. They are also the backbone and authority behind local government regulations, with the exception of local government's authority to zone. Local government rules and regulations have been kept to a minimum due to the comprehensive nature of state water laws in North Dakota.

Federal Legislation

Most water and related land use decisions in North Dakota can be made without reference to Federal legislation. However, in some instances, such as navigable waters, decision makers must consider and abide by Federal statutes. A different complement of statutes may apply to each situation depending on the conditions.

A study report[1] issued by the Souris-Red-Rainy River Basins Commission lists 250 Federal statutes bearing on water and related land resources enacted between 1789 and 1970. Needless to say, in the 7 years hence scores of statutes have been enacted. Several of these important to water and related land resources in the LSRB will be discussed briefly here.

General Legislation. The Federal Water Pollution Control Act (PL 92-500) establishes the following goals: 1) the discharge of pollutants into navigable waters be eliminated by 1935; 2) wherever possible, a national water quality safe for recreation, fish, and wildlife, be achieved by July 1, 1983; 3) the discharge of toxic pollutants be prohibited; 4) federal assistance be provided to construct waste treatment works; 5) areawide waste treatment planning be developed to assure control of sources of pollutants in each state (208 planning); and 6) a major effort be made to develop new technology to eliminate pollutant discharge into the

[1] See Souris-Red-Rainy River Basins Comprehensive Study, Volume 7, Appendix M: Legal and Institutional Environmental, 1972, for a discussion of federal, state, and local laws affecting development of water and related land resources, as well as a discussion of key court cases.

nation's waters. The State Department of Health in North Dakota has developed a work plan for implementing 208 planning throughout the state.[1]

The National Environmental Policy Act (NEPA) of 1969 (PL 91-190) declares a national policy to encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality. NEPA also mandates an environmental impact statement (EIS) be prepared if a new development requires a federal permit, loan guarantee, or financing, or is undertaken by a federal agency. The EIS outlines the expected impacts on the environment, alternatives to the proposed action, an examination of tradeoffs involved, and an examination of any irreversible commitments of resources.

The Flood Disaster Protection Act of 1973 (PL 93-234) was created to expand the national flood insurance program by increasing limits of coverage and total amount of authorized outstanding insurance, and by requiring flood-prone communities to participate in the program. Flood-prone communities receiving federal funds such as the Land and Water Conservation Fund are required to carry flood insurance.

The Safe Drinking Water Act (PL 93-523) establishes safe drinking water standards that apply to all public water supplies serving 15 connections or 25 individuals.

The Wild and Scenic Rivers Act (PL 90-542) establishes a policy that certain selected rivers of the nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic,

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[1] North Dakota State Wide 208 Water Quality Management Work Plan, Bismarck: North Dakota State Department of Health, 1976.

fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environment shall be protected for the benefit and enjoyment of present and future generations. The Act prescribes methods and standards by which river parts may be added to the system. Segments of the LSRB have been nominated to be preserved under the provisions of this Act. However, as of this writing none have been classifed as either wild, scenic, or recreational pursuant to the Act.

Public Law 87-732 ammends the Soil Conservation and Domestic Allotment Act to specify that the Secretary of Agriculture shall not provide financial assistance for wetland drainage if the Secretary of Interior has made a finding that wildlife preservation will be materially harmed on the drained area and such land in its undrained status will materially contribute to wildlife preservation.

Summary

Individual instances of water and related land use management decisions would have to be examined to determine if their actions would require federal involvement. Generally, if federal funding or agency involvement is part of the project then some federal statutes will apply.

Conclusion

Due to the comprehensive nature of State Water Laws as administered by the State Water Commission and the State Department of Health, local governmental agencies/subdivisions have not found it necessary to enact further rules or regulations regarding water and related land use. The only significant activity of local political subdivisions in this regard is zoning ordinances. Even these have not had water or related water land use management as their goal. Federal legislation may bear on decisions involving water and related land use depending on the circumstances surrounding each case.

CHAPTER FOUR

ORGANIZATIONAL RESPONSIBILITIES AND OBJECTIVES

In-depth interviews were conducted with representatives of 39 organizations associated with water and related land use resources. The organizations contacted were selected on the basis of several inputs. In part, they were pre-selected by the "Scope of Work" (Appendix F). Decisions to include or exclude depended on the organization's relation to water concerns and its level of responsibility.

A copy of the interview schedule is in Appendix B. The schedule elicited responses about organizational activities and objectives for water and related land use, their perceptions of water use and related problems, their solutions to these problems, the implications of these problems and solutions for other organizations, and their kind of relationships with other organizations. (For a diagrammatic presentation of these dimensions see Figure 1 in the Introduction). The chapters and sections that follow present and discuss the results of the interviews.

Organizations and Respondents

The classification of organizations in the in-depth part of the analysis varies from the classification of profiled organizations. Analysis of this second group of organizations suggested that the classification be changed because of the inclusion of some federal offices in North Dakota with services affecting the LSRB and the reduction in the number of non-government organizations. Also,

organizations are classified by functional jurisdiction rather than by source of authority. The re-classification of organizations that follows provides a more equitable distribution of organizations for the analysis of this second group of organizations.

State Level Organizations

Agricultural Stabilization and Conservation Service State Committee (ASCSSC)
Bureau of Reclamation (BR)
United States Fish and Wildlife Service (USFWS)
Environmental Protection Agency-Bismarck Office (EPA)
United States Soil Conservation Service-Bismarck Office (SCSB)
State Water Commission (SWC)
State Department of Health (SDH)
North Dakota Game and Fish (NDGF)
North Dakota State Parks and Outdoor Recreation (NDSPOR)
North Dakota State Planning (NDSP)
Garrison Diversion Conservancy District-Carrington Office (GDCDC)

Non-Government Organizations

North Dakota Wildlife Federation (NDWF)
Sierra Club (SIERR)
Audubon Society (AUDB)
League of Women Voters (LWV)
Min-Dak Farmers Flood Control Association (MDFFC)
Lower Sheyenne Citizens Advisory Committee (LSCAC)
Sheyenne Valley Association (SVA)
Sheyenne Valley Grazing Association (SVGA)
Southeast Cass Rural Water Users (SECRWU)
Barnes County Wildlife Federation (BCWF)

Regional Organizations

Souris-Red-Rainy River Committee Upper Mississippi Commission (SRRRC)
Lake Agassiz Regional Council (LARC)
South Central Regional Council-Jamestown Office (SCRC)
Red River Regional Council (RRRC)
United States Forest Service-Lisbon Office (USFSL)

City Organizations

Fargo Moorhead Metropolitan Council of Governments (FMMCG)
Fargo Planning Commission (FPC)
West Fargo Planning Commission (WFPC)

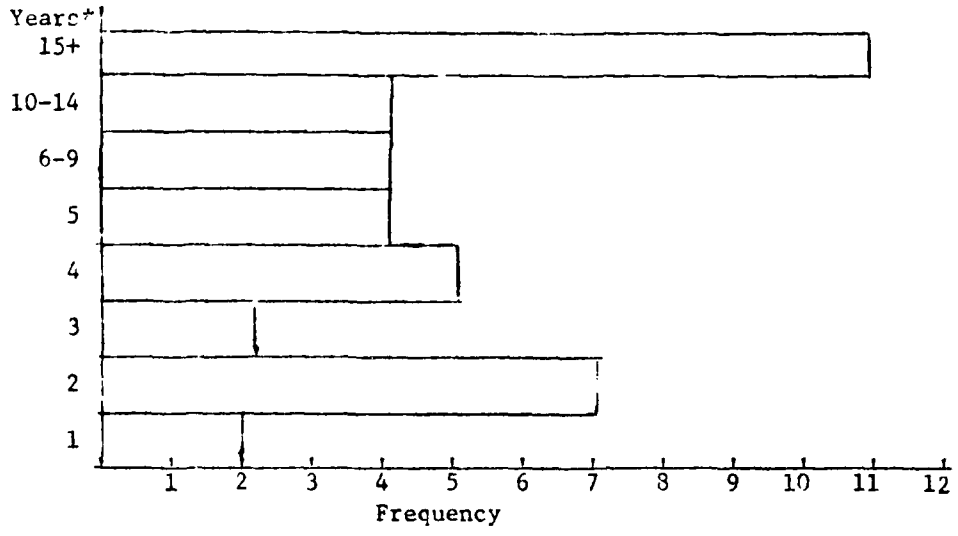
Valley City Planning Commission (VCPC)
Lisbon City Government (LCG)
Kindred City Government (KCG)
Horace City Government (HCG)

County and Township Organizations

Cass County Soil Conservation Service (CCSCS)
Cass County Health Department (CCHD)
Cass County Township Officers Association (CCTOA)
Richland County Township Officers Association (RICTPA)
Ransom County Township Officers Association (RACTOA)
Barnes County Township Officers Association (BCTOA)

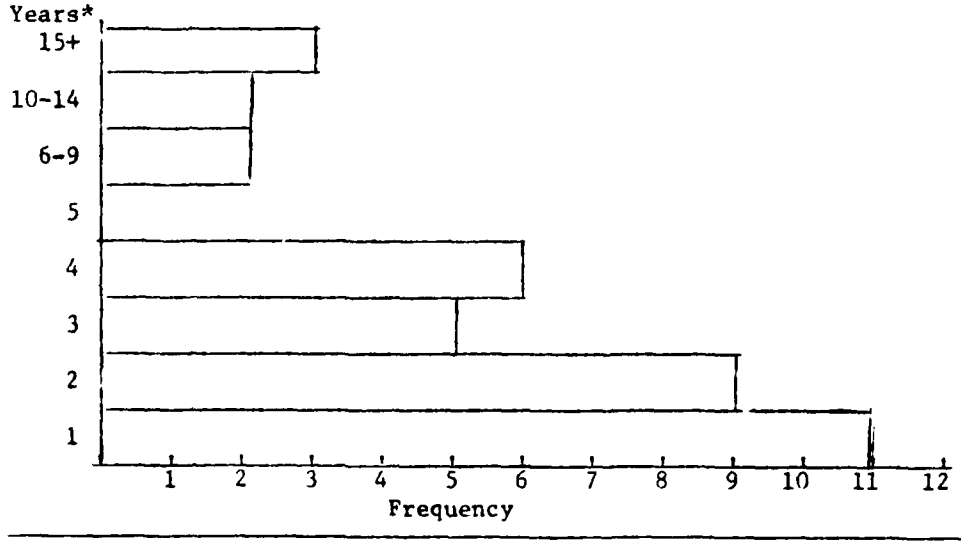
As with the profile, respondents were asked their length of time in the organization and in their present position and to indicate their primary occupation if not in the organization. A majority of persons were with their organizations longer than in their present positions (Figures 6 and 7). Eleven of the respondents had been in their present position about a year. However, only two had been in the organization that short a time. About half of the respondents were in their present position three or more years, and about half of the respondents were with their organization six or more years. Sixteen of the respondents gave their primary occupation as different than in the organization they were representing. The predominant occupation outside the organization was that of farmer or rancher.

FIGURE 6: YEARS RESPONDENTS OF ORGANIZATIONS INTERVIEWED IN-DEPTH WERE WITH THE ORGANIZATION



Source: From personal interviews completed September, 1977.
*One person did not respond.

FIGURE 7: YEARS RESPONDENTS OF ORGANIZATIONS INTERVIEWED IN-DEPTH WERE IN THEIR PRESENT POSITION



Source: From personal interviews completed September, 1977.
*One person did not respond.

General Purpose of the Organizations

The 39 respondents were asked to state the primary purpose of their organizations. The responses were placed into 16 categories (Table 21). The general purposes included management and conservation of resources, public education in use of resources, and the provision of advisory services in resource use and development.

TABLE 21: PRIMARY PURPOSE OF ORGANIZATIONS

Purpose of Organization	Organization
Statewide Planning, Coordination	NDSP
Planning and Coordination of Water Problems in Red River Basin	SRRRC
Regional Planning	LARC, SCRC, RRRC, FMMCG
City Planning	FPC, WFPC, VCPC
Assisting Townships	CCTOA, RICTOA, RACTOA, BCTOA
Environmental Education	NDWF, SIERR, AUDB
Encourage Political Participation	LWV
Administer, Develop Conservation	ASCSSC
Manage Land, Water Resources	BR, SCSB, SWC, GDCDC, SVGA, USFSL, CCSCS
Regulate and Control Environment	EPA, SDH, CCHD
Water Problems of Red River Basin	MDFFC, LSCAC, SVA
Provide Rural Water Supplies	SECRWV
City Government Services	LCG, KCG, HCG
Manage Fish and Wildlife	USFW, NDGF
Manage Recreation Resources	NDSPOR
Conserve Wildlife Resources	BCWF

Source: From personal interviews completed September, 1977.

Planning and coordination were the primary purposes of nine organizations and their jurisdictional areas were the essential factor differentiating among these organizational purposes. Management of resources was the primary purpose of thirteen organizations. Voluntary associations (non-governmental) were more interested in public education and the fostering of public participation in resource decision-making. Seven of the organizations were primarily interested in providing services for townships and cities in water and related land resources.

Clientele

The respondents assessed the importance of their organization for the pre-selected set of clientele groups. The clientele groups are ranked for each organization in Table 22. The total mean ranks and the mean ranks by organizational type are in Table 8 of the Introduction. Some volunteer clientele groups are also included in Table 22.

Forty-three percent of the total responses of the pre-selected clientele groups were ranked very important and mean ranks varied by type of organization. The general public was ranked the highest. The public is followed, in order of magnitude, by agriculturalist, recreationalist, small business and large business. The differences in emphasis among the organization types indicate that these organizations tend to serve somewhat different clientele. The second ranked "agriculturalist" clientele reflects the importance of agriculture in the lower Sheyenne River basin. The most frequently "volunteered" clientele group was other government units and this ranked high among those organizations giving it as a clientele group.

TABLE 22: RESPONDENTS' ESTIMATES OF THEIR ORGANIZATIONS' IMPORTANCE TO CLIENTELE GROUPS AND DEGREE OF IMPORTANCE*

Organization Type	Organization	General Public	Agricul-turalist	Small Business	Large Business or Industry	Recrea-tionalist	Other Govern-ment Units**	Other Responses
State Level								
	ASCSSC	5	5	5	5	5		
	BR	5	5	4	4	4		
	USFW	5	5	5	5	5		5 (counties)
	EPA	5	4	3	5	4		
	SCSB	3	5	3	4	5		
	SWC	5	5	2	5	5	5	
	SDH	5	5	3	5	5	5	
	NDGF	5	5	5	2	5	4	
	NDSPOR	5	1	1	2	5		5 (tourists)
	NDSP	5	5	4	4	4		
	GDCDC	5	5	5	5	5		
Non-Government								
	NDWF	5	4	4	4	5		
	SIERR	2	2	2	2	3		
	AUDB	5	5	5	5	5		
	LWV	5	-	-	-	-		
	NDFFC	5	5	4	3	3		
	LSCAC	5	5	4	3	5		
	SVA	5	5	3	2	4		4(environmentalists)
	SVGA	4	5	4	2	4		5 (org. members)
	SECRWU	5	4	2	1	1		
	BCVF	5	3	3	1	5		5 (org. members)
Regional Level								
	SRRRC	3	3	3	3	3	5	
	LARC	5	2	2	3	3	5	
	SCRC	5	3	3	3	3	5	
	RRRC	5	4	2	2	4	5	
	USFSL	5	5	3	3	4		5 (ranchers)
Cities								
	FMMCG	5	3	2	2	2	5	
	FPC	5	2	4	4	4	3	4
	WFPC	5	4	4	4	4		
	VCPC	5	3	4	4	4		
	LCG	5	5	5	3	3		
	KCG	5	5	5	4	4		
	HCG	5	5	4	4	3		
County and Township								
	CCSCS	5	5	4	4	5		
	CCHD	5	3	3	3	3		
	CCTOA	4	5	3	3	1	5	
	RICTOA	5	5	3	3	2	5	
	RACTOA	5	5	4	4	4	5	
	BCTOA	5	5	2	2	2	5	

Source: From personal interviews completed September, 1977.

*Responses are 1 = not important to 5 = very important.

**These two categories were volunteered in response to "other."

When mean ranks were examined by type of organization, the general public ranked highest among all five types. Agriculturalist ranked second among state level, non-government, and county and township organizations. It ties for second with recreationalist clientele among regional governments. Small businesses ranked second among city organizations. Recreationalist clientele ranked lowest among city, county and township level organizations. Small businesses ranked lowest as clientele among state level and regional level organizations. Large businesses ranked lowest among non-government organizations.

Respondents were asked to indicate the kinds of activities used to carry out their objectives. Also, they were asked to indicate the proportion of time and budget alloted for these activities. A follow-up mailing was used to acquire additional budget information. Objectives and their corresponding activities by organizational level are found in Table 23. This information with budget information is included in Table A-6 in Appendix A. It is noted that budget information must be viewed only as general approximations.

The activities coincide closely with objectives and in some cases are similarly stated. The most frequently stated activities were planning for water supply and quality, planning land uses and zoning, data collection and research, and coordination and support of planning. Totals of these and other activities are in Table 23.

TABLE 23: FREQUENCY OF OBJECTIVES AND ACTIVITIES BY TYPE OF ORGANIZATION

Activities by Type of Organizations	Objectives: Preserve and Protect Natural Resources	Provide Water Supplies	Flood and Drainage Control	Enhance Water Quality	Develop Natural Resources	Develop Recreation	Information, Education and Citizen Participation	Develop and Preserve Wildlife Habitat	Monitor Projects	Coordinate Govt. Activities	Other	Total
Number of Organization	14	9	9	7	8	6	9	4	3	3	9	
Planning for Water Supply and Quality	1-R		1-R	1-L	2-R	2-S					2	9
Data Collection and research		1-S 1-C		2-S	1-R		1-N				2	8
Planning land use, zoning	1-N				1-R 2-C	1-S 1-R	1-N			1-L	1	9
Coordinate and Support Plann Planning	1-S 1-R 1-N		1-N		4-R						0	8
Develop Recreation sites	1-N				1-S	1-S 2-C	1-S				1	7
Advocate Conservation Practices	2-S 1-R 1-L			1-S							1	6
Assist in funding and funding priorities	1-R		1-R 1-C			1-R		1-S			1	6
Develop Impoundments & stock ponds		1-N	1-S 2-N		1-C						1	6
Diking & bank Stabilization			1-S 1-N 2-C					1-S			1	6
Promote meetings & discussions				1-S			1-L 1-N		1-N 1-L	1-L	0	6
Provide Information					1-N		2-N		1-N			4
Other	3	7	4	5	4	0	4	7	2	4		

Source: From personal interviews completed September, 1977.

CHAPTER FIVE

ORGANIZATIONAL PERCEPTIONS

Problems and Causes

An important portion of the survey dealt with respondents' perceptions of major problems related to water use and quality, causes of these problems and potential solutions. Specifically, respondents were asked "From the perspective of your organization, what are the major problems related to water resources management and related land use in the Lower Sheyenne River Basin?" and "From the perspective of your organization, what are the major causes of this problem?" Table A-7 (Appendix A) provides the proposed problems and their causes for each of the problems suggested by each respondent and categorized by the respondent's kind of organization.

Flooding, water supply, and drainage are suggested about equally as problems. Forms of pollution ranked fourth in frequency followed by water quality, environmental and recreational problems, conflict of interest, management and the "proposed project." In proposing causes of these problems, problems in land use was followed by stream characteristics and natural causes, agricultural practices, and water use. Other suggestions were problems in regulation and governmental coordination, and general ecosystem mismanagement. Four specifically mentioned authorization of the Kindred Dam as cause.

The problems were combined into general categories. Table 24 summarizes the resultant frequencies of problems by causes. Natural sources (including natural causes and stream characteristics) becomes the most frequently stated cause particularly for flooding and water supply.

TABLE 24: PERCEIVED WATER AND RELATED PROBLEMS AND THEIR CAUSES IN FREQUENCY BY LEVEL OF ORGANIZATION

Proposed Problems by Organizational Level	Causes						
	Natural Sources	Improper Land Use	Increased Water Use	Poor Management	Ecosystem Destruction and Concern	Specific Pollution	None Proposed
State Level							
Flooding	2	2					1
Water Quality						8	
Water Supply	3		3				
Erosion	3	3	2	1			
Wildlife-Recreation		1	1		1	1	
Management		1		1			
Non-Government							
Flooding		1					
Water Quality						3	
Water Supply	1	1	1				
Erosion	1	3		2	1		
Wildlife-Recreation							
Management				2			
Regional							
Flooding	1	4	1				
Water Quality	2					3	
Water Supply			3				
Erosion		1					
Wildlife-Recreation	1	1			2		
Management		1	1				
City							
Flooding	4	5		1			
Water Quality						1	
Water Supply	6		5				
Erosion	1						
Wildlife-Recreation							
Management							
County-Township							
Flooding	1						
Water Quality			1			1	
Water Supply	1		2				
Erosion	1	2					
Wildlife-Recreation							
Management							

Source: From personal interviews completed September, 1977.

Improper land use was frequently stated as a cause of flooding and other water related problems. Increased water use was a frequent reason for water supply problems. Specific kinds of pollution were given as reasons for poor water quality. Table 25 provides totals of proposed causes.

TABLE 25: TOTAL FREQUENCIES OF PERCEIVED WATER AND RELATED PROBLEMS AND THEIR CAUSES

	Causes							
Proposed Problems	Natural Sources	Improper Land Use	Increased Water Use	Poor Management	Ecosystem Destruction and Concern	Specific Pollution	None Proposed	Total
Flooding	8	12	1	1	0	0	1	23
Water Quality	2	0	0	0	0	16	0	18
Water Supply	11	1	14	0	0	0	0	26
Erosion	6	9	2	3	1	0	0	21
Wildlife-Recreation	1	2	1	0	3	1	0	8
Management	0	2	1	3	0	0	0	6
Total	28	26	19	7	4	17	1	102

Source: From personal interviews completed September, 1977.

Effect of Solutions on Own Organizations

In addition to suggesting problems and causes, respondents of the 39 organizations suggested solutions to the problems and how these solutions might effect their organizations with specific reference to

activities, geographic area, value of property, revenues and expenditures (See Figure 8). These responses are indicated by organization in Table A-8 in Appendix A.

FIGURE 8: AFFECT OF SOLUTIONS ON OWN ORGANIZATION

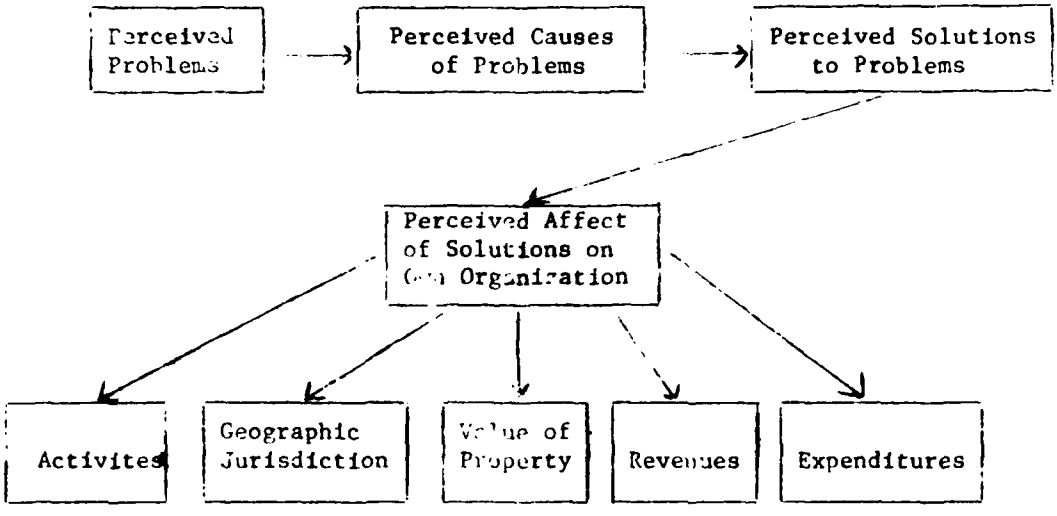


Table 26 summarizes the perceived problems and their proposed solutions by level of organization. Only the most frequently suggested solutions are individually indicated and problems are grouped into major categories. Table 27 summarizes the solutions to proposed problems.

TABLE 26: PERCEIVED WATER AND RELATED PROBLEMS AND THEIR SOLUTIONS IN FREQUENCY BY LEVEL OF ORGANIZATION

Proposed Problems By Organizational Level	Solutions										
	Study, Citizen Participation	Flood Plain Zoning	Diking	Better Zoning	Cover Crops, Tillage	Drainage Regulation	Control Drainage	Diversion	Stop Wetland Damage	Other	None Proposed
State Level											
Flooding	1	3	1			1	1	1		2	
Water Quality				6	1					5	
Water Supply		1						4		1	
Erosion					1	2	1		1	2	
Wildlife-Recreation									2	2	
Management									1		
Non-Government											
Flooding		1								1	
Water Quality										1	1
Water Supply	1									1	1
Erosion	1	1	2			2	2			1	
Wildlife-Recreation											
Management	3									1	
Regional											
Flooding		2								2	
Water Quality				1	1					4	1
Water Supply								1		4	
Erosion						1					
Wildlife-Recreation										2	
Management	1	1								1	
City											
Flooding		2	3			1	2			4	
Water Quality				1						1	
Water Supply								1		5	1
Erosion										1	
Wildlife-Recreation											
Management											
County-Township											
Flooding					1		1				
Water Quality										1	
Water Supply										2	
Erosion					2		1			1	2
Wildlife-Recreation											
Management											

Source: From personal interviews completed September, 1977.

TABLE 27: PERCEIVED WATER AND RELATED PROBLEMS AND THEIR SOLUTIONS IN FREQUENCY TOTALS

	Solutions											
Proposed Problems	Study, Citizen Participation	Flood Plain Zoning	Diking	Better Zoning	Cover Crops, Tillage	Drainage Regulation	Control Drainage	Diversion	Stop Wetland Damage	Other	None Proposed	Total
Flooding	1	7	4		1	2	4	1		9		29
Water Quality				8	2					12	2	24
Water Supply	1	1						6	1	13	2	24
Erosion	1	1	2		3	5	4			5	3	24
Wildlife-Recreation									2	4		6
Management	4	1							1	2		8
Total	7	10	6	8	6	7	8	7	4	45	7	115

Source: From personal interviews completed September, 1977.

Flood plain zoning was the most frequently mentioned specific solution and was most frequently mentioned as a solution to flooding. Zoning predominates as a proposed solution when flood plain zoning and better zoning are combined. Drainage regulation and stopping wetland drainage, when combined, were the next most frequently mentioned solutions. These were proposed primarily for other than flooding problems. More study and citizen participation was proposed most frequently for water management problems. Other solutions mentioned about equally

were diking, diversion, and use of cover crops and better tillage practices in agriculture. Diversion was most frequently mentioned as a solution to water supply problems.

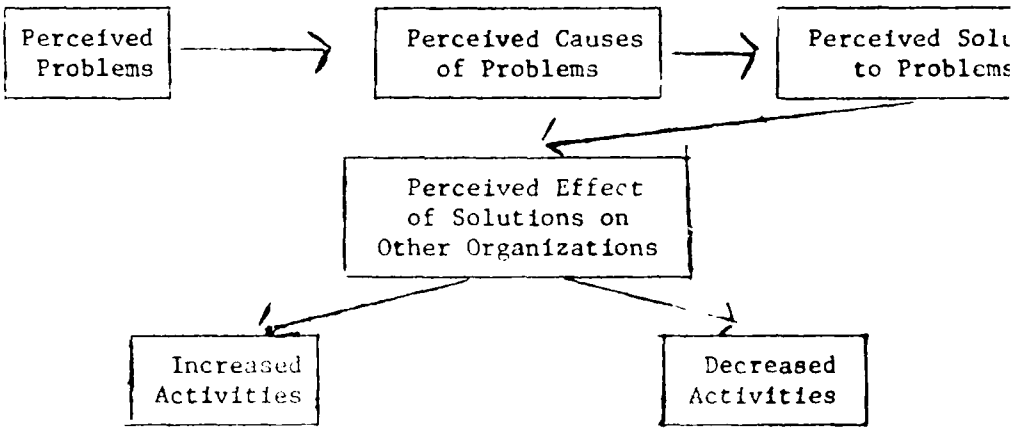
The respondents saw little effect of solutions on the geographic area of their organizations with only three mentioning that it would increase (See Table 10 in the Introduction). However, they saw a majority of their solutions increasing their activities. They saw about forty percent of their solutions increasing the value of property, revenues and expenditures. None saw their solutions reducing property values, decreasing revenues or expenditures.

CHAPTER SIX

ASSESSMENTS OF OTHER ORGANIZATIONS

This institutional analysis obtained respondents' perceptio of the effect of proposed solutions on other organizations as well on their own. Each respondent of the 39 organizations was asked to state what other organizations would be effected by their proposed solutions and whether the action would decrease that organization's functions if implemented. (Figure 9 provides a diagram of the rela tionship of problems, solutions, and related factors examined in th part of the analysis). Table A-9 (Appendix A) provides the propose solutions, indicates the organizations perceived as affected and whether the solutions will increase or decrease the organizations' activities.

FIGURE 9: AFFECT OF SOLUTIONS ON OTHER ORGANIZATIONS



Very few of the proposed activities were seen as decreasing the activities for other organizations. Only six organizations were indicated in this category and these were the Army Corps of Engineers, Cheyenne Valley Association, U.S. National Guard, Flood Insurance Agency, State Highway Department and private contractors and developers. However, almost all proposed activities were seen as increasing activities for at least one other organization. Table 28 lists those solutions proposed six or more times by respondents, and indicates the frequency with which the more frequently mentioned organizations are seen as having increased activities. In this partial summary table, the Army Corps of Engineers is indicated most frequently as having increased activities. The State Health Department, Water Drain Boards and Local and County Planning Commissions are frequently perceived as having increased activities. There is some disparity among organizational levels in how frequently they mentioned solutions. Local level organizations were less prone to suggest solutions and when they did they tended to differ from higher level organizations. Table 29 summarizes frequencies by organization and solution.

It is apparent that these respondents perceived that proposed solutions will mean increased activities for some other organizations and for a few a good deal more than for others. Few activity efficiencies are seen in the form of decreased activities for other organizations.

TABLE 28: PROPOSED SOLUTIONS TO WATER AND RELATED PROBLEMS AND ORGANIZATIONS WITH INCREASED FUNCTIONS FOR MOST FREQUENTLY MENTIONED SOLUTIONS

Proposed Solution by Organizational Level	Organizations With Increased Functions							
	ACE	BR	USSCS	SHD	NDGF	SRRRC	WDB	LCPC
State Level								
Study, Citizen Participation	1							
Flood Plain Zoning	2							5
Diking	1						1	
Better Zoning	1	1		5	3		2	
Cover Crops, Tillage								
Drainage Regulation			1	1			2	
Control Drainage			1	1				
Diversion	3	3	1	1	2		2	
Non-Government								
Study, Citizen Participation	5		1	2	1	2	2	
Flood Plain Zoning	1							3
Diking	2			2			1	
Better Zoning								
Cover Crops, Tillage								
Drainage Regulation	1	1		4			3	1
Control Drainage	1	1	1	1			1	
Diversion								
Regional								
Study, Citizen Participation							1	
Flood Plain Zoning				1	1		1	1
Diking								
Better Zoning				1			1	2
Cover Crops, Tillage			1					
Drainage Regulation				1			1	
Control Drainage								
Diversion	1	1		1				
City								
Study, Citizen Participation								
Flood Plain Zoning	1							
Diking	3							
Better Zoning					1		1	1
Cover Crops, Tillage								
Drainage Regulation				1		1		
Control Drainage	1		1	2			1	
Diversion		1		1				
County-Township								
Study, Citizen Participation	1							
Flood Plain Zoning								
Diking								
Better Zoning								
Cover Crops, Tillage							1	
Drainage Regulation								
Control Drainage	1						1	
Diversion								

Source: From personal interviews completed September, 1977.

TABLE 29: TOTAL OF INCREASED ACTIVITIES FOR MOST FREQUENTLY MENTIONED ORGANIZATIONS BY KIND OF SOLUTION

Proposed Solutions	Organization with Increased Functions								
	ACE	BR	USSCS	SHD	NDGF	SRRRC	WDB	LCPC	TOTAL
Study, Citizen Participation	7	0	1	2	1	2	3	0	16
Flood Plain Zoning	4	0	0	1	1	0	1	9	16
Diking	6	0	0	2	0	0	2	0	10
Better Zoning	1	1	0	6	4	0	4	3	19
Cover Crops, Tillage	0	0	1	0	0	0	1	0	2
Drainage Regulation	1	1	1	7	0	1	6	1	18
Control Drainage	3	1	3	4	0	0	3	0	14
Diversion	[illegible]	5	1	3	2	0	2	0	17
Total	26	8	7	25	8	3	22	13	112

Source: From personal interviews completed September, 1977.

CHAPTER SEVEN

ORGANIZATIONAL RELATIONSHIPS

Communication networks in most human communities are complex. This survey attempted to determine kinds of relationships the 39 organizations had with other organizations. Categories were formed for determining kinds of contacts and underlying reasons for contacts among the organizations. The following taxonomy was used:

Reporting obligation
Formal communication
Informal communication
Geographic area overlap by law
Geographic area overlap by practice
Similar activities by law
Similar activities by practice

"Formal" and "informal" refer to the kinds of contacts occurring among the organizations. The other five categories refer to underlying reasons for the contacts. These make distinctions between having contacts because they are required and having contacts because it is convenient or functionally advantageous to do so. Obligatory relations are reporting obligation, geographical area overlap by law and similar activities by law. Functionally advantageous categories are geographic area overlap by practice and similar activities by practice.

Table A-10 in Appendix A shows most organizations in contact with the surveyed organizations and their kinds of relationships. The least frequent reason given for relationships with other organizations is reporting obligation. The most frequent kind of relationship stated by respondents is informal communication. However, on examining Table 30,

TABLE 30: COMMUNICATION NETWORK AND KINDS OF INTERACTION AMONG ORGANIZATIONS BY KIND OF ORGANIZATION AND FREQUENCY OF KIND OF CONTACT

Respondent's Kind of Organization (# in Category)	Total Number of Contact Organizations	Kind of Relationships: Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activities by Law	Similar Activities by Practice
State Level 11	108	19	105	96	100	105	38	39
Non-Government 10	55	4	51	52	3	48	2	18
Regional 5	40	9	33	40	29	33	14	15
City 7	32	5	24	32	30	30	9	9
County and Township 6	26	5	19	26	24	26	8	8
Total 39	261	42	235	246	186	242	71	89

Source: From personal interviews completed September, 1977.

it is apparent that most organizations with informal communication also communicate formally. Also, formal communication is the second most frequent kind of relationship among the organizations indicated in this survey. Table 31 shows the frequency of formal and informal relations among the kinds of organizations. Most frequent formal and informal contacts are among state and federal organizations.

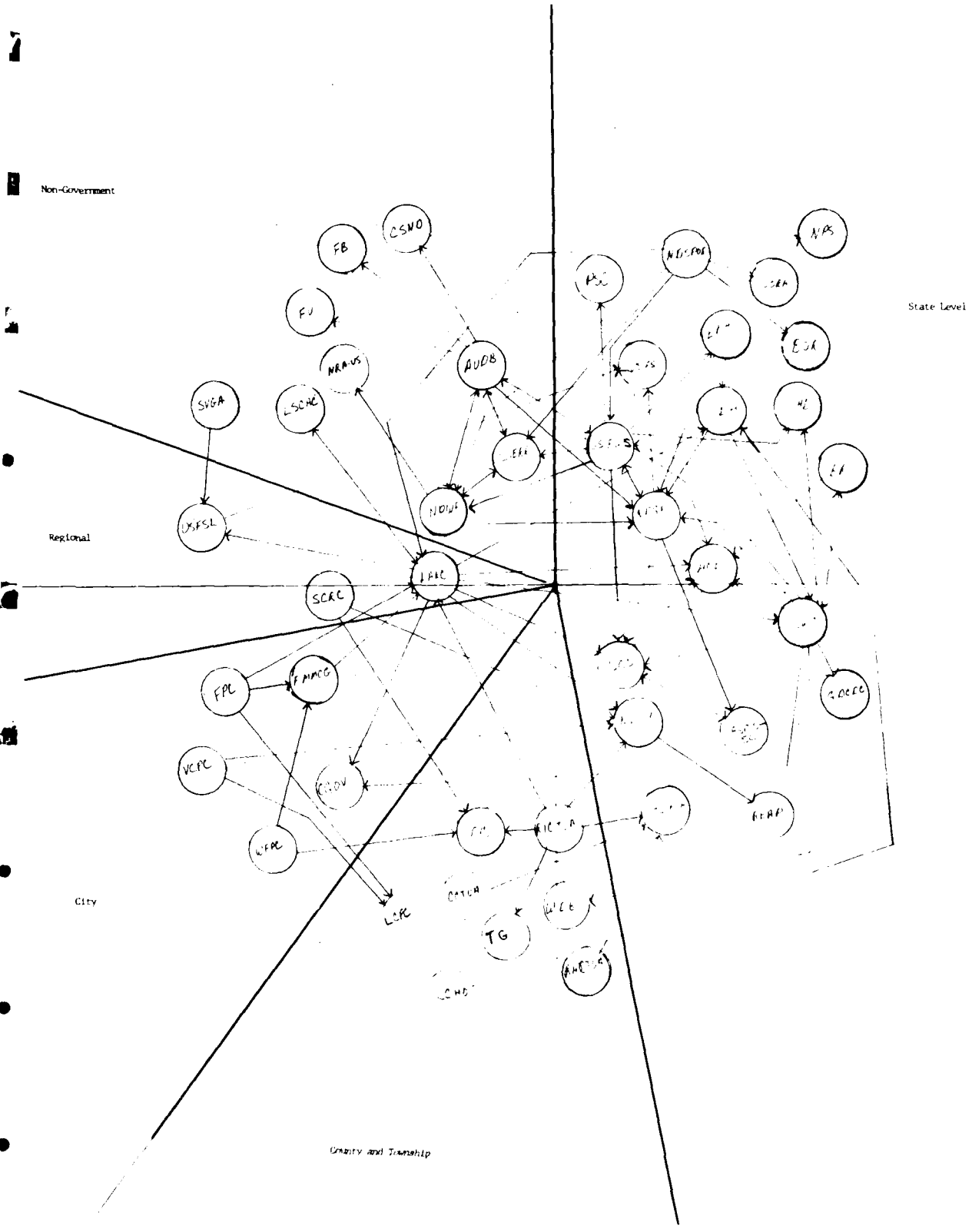
TABLE 31: FREQUENCY OF FORMAL AND INFORMAL COMMUNICATION BY KIND OF ORGANIZATION

Kind of Responding Organization	Kind of Organization Communicating With					
	Federal	State	Regional	Local	Non-Government	Total
State						
Formal	37	39	4	15	10	105
Informal	34	36	4	13	9	96
Non-Government						
Formal	12	14	5	6	14	51
Informal	12	14	5	4	17	52
Regional						
Formal	14	12	2	5	3	36
Informal	14	12	2	7	5	40
City						
Formal	5	4	4	11	0	24
Informal	6	7	5	13	1	32
County-Township						
Formal	4	4	1	6	4	19
Informal	4	6	1	10	5	26
Total						
Formal	72	73	16	43	31	235
Informal	70	75	17	47	37	246

Source: From personal interviews completed September, 1977.

Legally defined overlapping boundaries is rather frequently stated as a reason for interacting with other organizations. The reporting obligation network is in Figure 10. However, more organizations

FIGURE 10 COMMUNICATION NETWORK REPORTING OBLIGATION TO OTHER ORGANIZATIONS BY KIND OF ORGANIZATION



Arrows indicate a reporting obligation from the responding organization to the organization mentioned

with overlapping boundaries interact by practice than by law. Even fewer interact because of similar activities as legally defined. Somewhat more organizations interact with other organizations because they have similar activities in practice. The communication network by geographic overlap is in Figure 11.

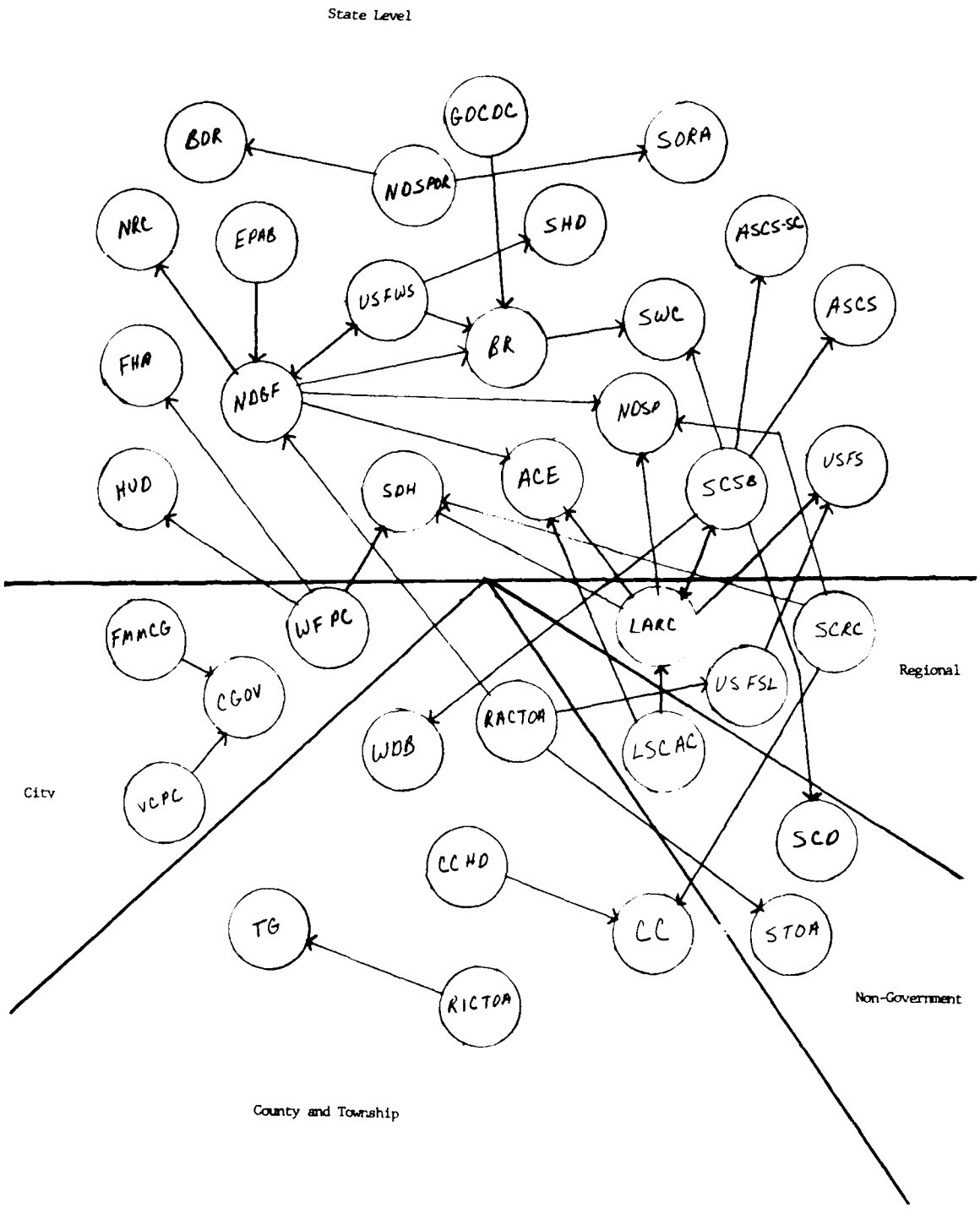
The communication system, as it seems to operate among the organizations, is more due to practicality and interest than to some law defining the associations and there is some variation by kind of organization. For instance, non-governmental organizations are less likely to have legally defined associations than are governmental agencies. It is important to note that formal and informal relations are pervasive in all categories of organizations.

Participation in Corps Flood Control Study

A part of the survey examined the anticipated involvement of these 39 organizations in a study of flood control by the Army Corps of Engineers. It assessed the likelihood of involvement with the corps, whether directly or indirectly, and if indirectly, through what other organizations. The responses to this portion of the survey are summarized in Figure 12. Respondents' groups are categorized by kind of organization.

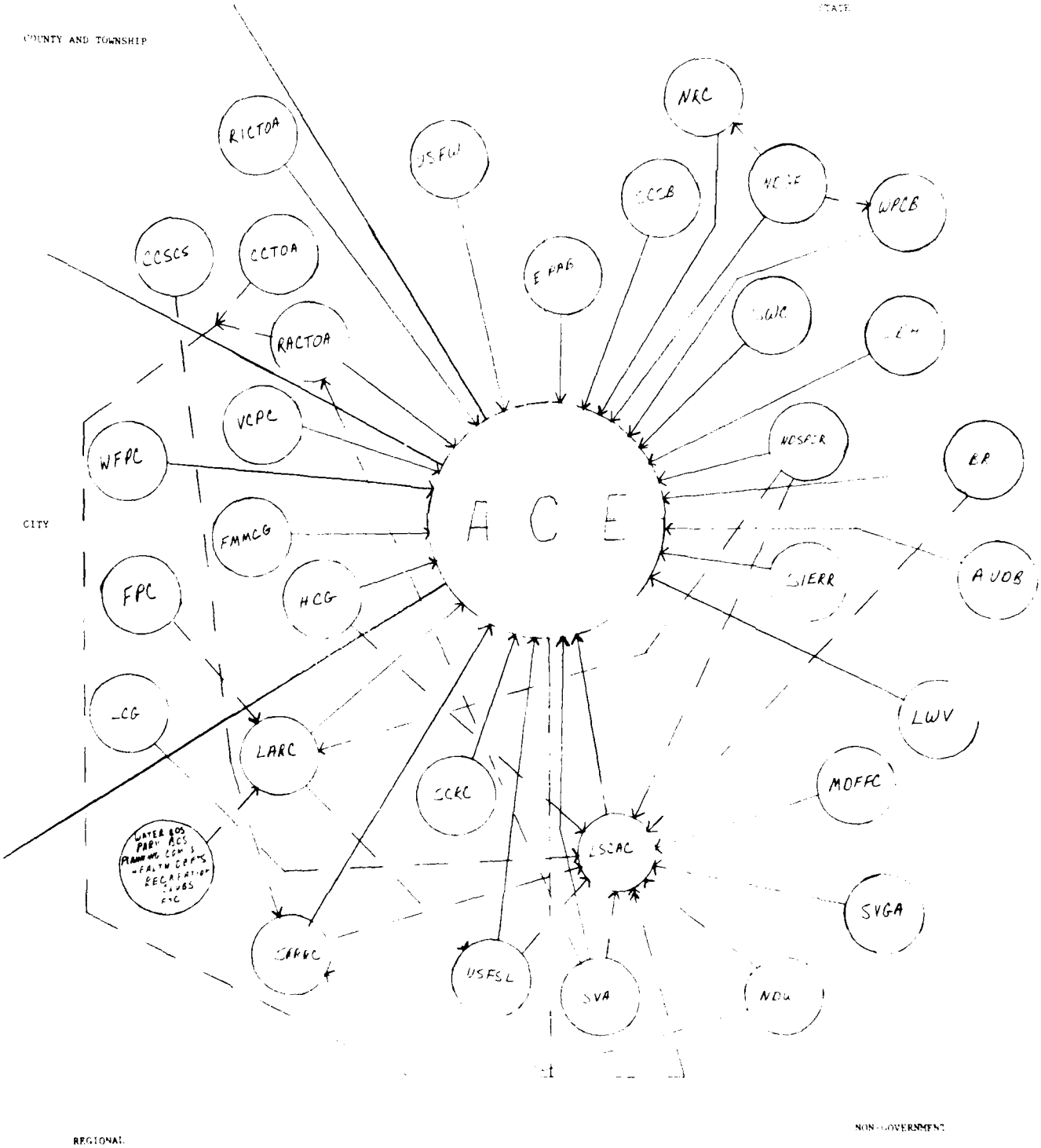
Twenty-three of the 39 organizations said they would be directly involved in the study and 21 said they would be indirectly involved. Ten respondents said they would not be directly involved and 7 said they would not be indirectly involved. The remainder were uncertain if they would be either directly or indirectly involved. None of the total groups said they definitely would not be involved either directly or indirectly. In sum, a firm majority anticipated involvement, either directly or indirectly, in the flood control study by the Army Corps of Engineers. A goodly share of indirect involvement would be through the Lower Sheyenne Citizens Advisory Committee.

FIGURE 11: COMMUNICATION NETWORK BY GEOGRAPHIC OVERLAP AND SIMILAR ACTIVITY BY KIND OF ORGANIZATION



Arrows indicate some degree of geographic overlap and performance of similar activities overlap by organizations. Arrows point from the responding organization to the organization mentioned.

FIGURE 12 ORGANIZATIONS ANTICIPATING DIRECT AND INDIRECT PARTICIPATION IN ARMY CORPS OF ENGINEERS STUDY OF LOWER SHEYENNE RIVER BASIN



Solid lines indicate direct participation and broken lines indicate indirect participation through another organization

CHAPTER EIGHT

SUMMARY AND CONCLUSIONS

Institutional Analysis Purpose and Procedures

This institutional analysis of the lower Sheyenne River basin in North Dakota is part of a reformulation study of the St. Paul district of the Army Corps of Engineers as stipulated in ER 1105-2-200 and ER 1105-2-22. Specifically, the purpose of the institutional analysis is to assess how institutions in the area will be affected by changes, to determine the organizational and political acceptability of changes and to assess the organizations' financial, legal and technological feasibility of participating in planned changes. The focus is on problems related to water and related land use resources.

In order to obtain information relative to planned changes in water and related land use, this analysis examined organizations with interests in flood control, water supply, water quality, land use, floodplain regulation, fish and wildlife and other natural resources in the lower Sheyenne River basin. It analyzed organizational goals, functions and objectives as indicated in the organizations' legal documents as perceived by their officers. It also examined the officers' perceptions of other organizations and of their organizations' interaction with other groups. Fifty-four organizational representatives were interviewed in the profile portion of the survey and 39 were interviewed in the detailed survey. Organizations were selected on the basis of their apparent and defined interests in water and related land resources in the lower Sheyenne River basin. The analysis

utilized two sets of organizational types. In the profile part of the institutional analysis, these were non-government state, non-government regional, regional, county and local. In the in-depth part of the analysis there were state level, regional level, city, and county-township government and non-government.

Characteristics of Profiled Organizations

Most of these respondents (of the profiled organizations) considered their organization to be permanent and an important portion of the work in all five categories of organizations was done by voluntary staff. No organization considered their primary relation to water and related land resources to be financial. The most frequent activity of these organizations was planning and zoning, followed by resource use and control. One-fourth of the respondents stated their activities as regulation, public education or lobbying. Some were involved in research and legislation. About two-thirds said primary objectives were related to water quality, use, supply and flooding.

Funding sources were reflective of differences between government and non-government organizations. There was variation in amount of contact with other organizations by kind of organization. County Governments were the most frequently contacted organizations.

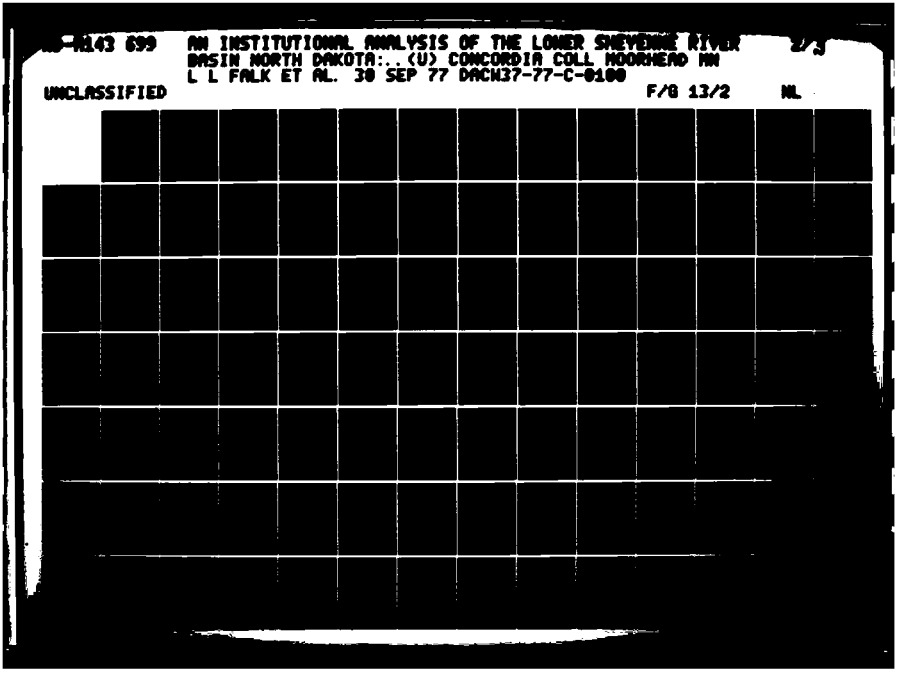
The characteristics of profiled organizations lead to some conclusions about organizational involvement in planned changes in water and related land use. Since an important portion of the respondents work in these organizations voluntarily, their personal

acceptance of planned changes is important. If planned changes are not personally acceptable to these volunteers, their personal efforts in their present organizational position may be non-supportive of planned changes. Also, these persons have involvement and some influence in their other occupational areas.

Implementation of changes could take place through a relatively stable and established organizational structure since the existing organizations are almost all permanent. The personnel may change within these organizations since many are voluntary and since almost half have been in their organizations two or less years (this may indicate a degree of fluidity among personnel).

The organizations interviewed were more oriented toward planning and knowledge facilitation than toward funding activities. An important portion of funding comes from non-governmental sources. If it is true that the profiled organizations are similar to the in-depth organizations (and there is some overlap), most perceived changes would enhance rather than diminish organizational activities and costs. If additional funding comes from present sources it would require expansion of funding from a variety of sources including an important increase from private sources. Otherwise, federal funding would need to supplement a variety of other funds.

Various interests are fairly well represented by the organizations profiled in this group. However, wildlife interests had the least amount of representation among these organizations and may need to receive special attention.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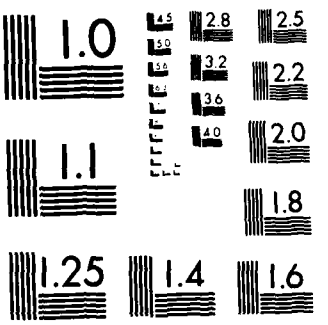

Water and Related Land Use Legislation

Federal activities in water and related land resources will involve North Dakota state regulations and some local rules. The North Dakota Water Laws, administered primarily by the State Water Commission and the State Department of Health, constitute the majority of significant water and related land use legislation at the state level. They are also the backbone and authority behind local government regulations, with the exception of local government's authority to zone. Special regulations exist for water quality of the Sheyenne River and Clausen Spring within the lower Sheyenne River basin. Other agencies with interests in water regulations are Outdoor Park and Recreation Agency, Garrison Diversion Conservancy District, State Game and Fish Department, the State Geological Survey and the State Planning Division.

The state water laws, as administered by the State Water Commission and the State Department of Health, are fairly comprehensive. For this reason, local governmental agencies and subdivisions have not found it necessary to enact additional water and related land use rules and regulations. Local government is concerned primarily with issues of more local significance and become involved with water and related land use policy primarily through their powers to zone. They are not actively involved in regulating water and related land use except through water management districts and to some extent local health boards though they are concerned about water supply and use. Thus, proposed changes would primarily effect local governments through changes in land use.

General Purpose of Organization

As previously indicated, 39 organizations were interviewed to determine organizational purpose, perceived water and related land use problems, their causes, solutions and effect of solutions on their and other organizations. The purpose of the organizations were placed into 16 categories indicating diversity of purpose. The general purposes included management and conservation of resources, public education in the use of resources, and providing advisory services in resource use and development. Planning and coordination were the primary purposes of nine organizations and their jurisdictional areas differentiated their organizational activities. Management of resources was the primary purpose of thirteen. Voluntary associations were more interested in public education and public involvement in decision-making. Seven of the organizations were primarily interested in providing services in townships and cities.

The general public ranked highest when these organizations ranked the importance of their clientele groups. In order of magnitude, the public is followed by agriculturalist, recreationalist, small business and large business. There were differences in emphasis by type of organization. Interests in clientele beyond the general public reflects the importance of agriculture in the lower Sheyenne River basin. Business interests, particularly large business, ranks generally lower among the interests. Although "large business" was not clearly defined in this survey, these interests likely reflect the economic interests of the area. Large businesses do exist in the area, but the proportionate involvement of the public would be less

in this than in other clientele categories. It may be concluded that these 39 organizations represent interests roughly proportionate to the interests of the general public in the lower Sheyenne River basin.

The source of funds for these organizations closely reflects their purposes and kind of organizations. State level organizations were primarily funded by state and federal funds. Non-governmental organizations were funded by private sources. Regional organizations were funded by state and federal sources though federal predominate. City organizations are supported by local funds and county-township governments by local funds with some additional federal funds. The implications for funding water projects as discussed in the section on profiled organizations would appear to apply to these organizations as well. Water resource changes, as viewed by these respondents, would tend to increase their activities and also the need for additional funds. These funds would have to come from the present array of sources or be supplemented by federal funds if organizational expansion takes place.

Problems, Causes, and Solutions

The respondents recognized an array of water related problems. Flooding, water supply, and drainage ranked equally high as problems. Forms of pollution ranked fourth followed by water quality, environmental and recreational problems, conflict of interest, management and "the proposed project." Respondents proposed both causes and solutions to their perceived problems. Land use ranked highest as a proposed

cause followed by stream characteristics and natural causes, agricultural practices and water use. Other suggestions were problems in regulation and governmental coordination, and general ecosystem mismanagement. Four specifically mentioned the proposed Kindred Dam as cause. Those interviewed suggested a variety of solutions including impoundment, better zoning, better draining regulations, controlled drainage, more citizen involvement, diking and better agricultural conservation practices.

It is doubtful that this array of water related problems and causes could be ameliorated by one major water-land project. Interest in problems and their causes is sufficiently diverse that segmental change may be necessary (i.e., a series of limited projects) either undertaken independently or coordinated into some lower basin plan. In any case, it appears that integrated planning is implied from the combined perceptions of these respondents. The diversity would seem to indicate the need for organizationally integrated activities. The diversity also suggests that integrated organizational planning will not be easily accomplished since there is conflict among causes and solutions as perceived by these respondents.

Effect of Solutions on Organizations

The effect of perceived solutions on the respondents' own organization is similar to the effect perceived on other organizations. Solutions were seen as either not affecting the organization or as increasing the assessed dimensions. About 70 percent of the solutions were seen as increasing activities in their own organization. These

solutions were seen as increasing the value of their property and as increasing their revenues. About 44 percent saw the solutions as increasing their expenditures. Since expenditures usually precede revenues, increased funding would be necessary in an important portion of the perceived solutions. Implications for funding were discussed earlier.

Very few of the proposed activities were seen as decreasing the activities for other organizations. The most frequently indicated organization perceived as having more activities was the Army Corps of Engineers. Mentioned nearly as frequently was the Water Resource Council. In all, few activity efficiences are seen in their solutions in the form of decreased activities and either their own or other organizations.

Organizational Interrelations

The 39 organizations had an extensive communication network with other organizations. The most frequent kind of relationship with other organizations was informal communication though most organizations with informal communication also communicated formally. An analysis of the kinds of communication suggested that the informal system parallels the formal one. Also, analysis of the communication network suggested that much of the communication derives from geographic overlap by both law and practice, though practice is the more frequently stated reason. Fewer interact because their activities were legally defined as similar. More organizations interacted because they had similar activities in practice.

The communication system is more due to practicality and interest than to some law defining the associations, and there is some variation by kind of contact and kind of organization. This cursory analysis seems to indicate a healthy communicational system since formal social networks function more efficiently when supplemented by informal ones. As stated earlier, organizations tended to be permanent, have somewhat unique goals and jurisdictions and participate in an extensive communication network. Any planned action in water and related land use would touch on an array of existing interrelated systems. There is some communication clustering by special interest.

A majority of the organizations anticipated involvement, either directly or indirectly, in the flood control study by the Army Corps of Engineers. An important share of anticipated indirect involvement would be through the Lower Sheyenne Citizens Advisory Committee.

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APPENDIX A

DATA BASED TABLES

(Organizations and Acronyms not Indicated
Elsewhere Are Found After A-10)

A-1

TABLE A-1 [illegible] CHARACTERISTICS OF ORGANIZATIONS ASSOCIATED WITH WATER USE, QUALITY AND RELEVANT LAND USE

Characteristics

Kind of Organization	[illegible]	[illegible]	Full-time Staff	Voluntary Staff	Number Members	Number Served	Specific Regulations	Organization Permanent	Organization a Subunit	Jurisdiction Other Units	[illegible] Other Organizations	Available Budget
Non-government State Level												
[illegible]	x	x	[illegible]	[illegible]	[illegible]	611761	x	x	x		x	x
North Dakota Wildlife Federation	x	x	[illegible]		[illegible]	[illegible]		x	x	x	x	
[illegible]	x	x		x	[illegible]			x	x		x	
[illegible] Water Users	x	x		[illegible]	[illegible]		x	x	x		x	x
North Dakota [illegible] Association	x	x	[illegible]	[illegible]	[illegible]	[illegible]	x	x			x	
[illegible]	x				[illegible]	[illegible]	x	x			x	
North Dakota Farmers Union	x	x	[illegible]		[illegible]	[illegible]		x	x	x	x	x
North Dakota Farm Bureau	x	x	[illegible]		[illegible]	[illegible]	x	x	x	x	x	
North Dakota Association of Soil Conservation Districts	x	x		[illegible]		611761		x	x	x	x	x
[illegible] North Dakota Association	x	x	x	[illegible]	[illegible]	611761	x	x			x	
North Dakota [illegible] Counties	x		x		[illegible]			x	x		x	
Non-government Regional Level												
[illegible] Farmers [illegible]				[illegible]	[illegible]		x				x	
Sheyenne Valley Association	x	x		[illegible]	[illegible]	[illegible]	x	x			x	x
Sheyenne Valley [illegible] Association	x	x	[illegible]	[illegible]	[illegible]	[illegible]		x	x		x	x
[illegible] Rural Water Users	x		[illegible]	[illegible]	[illegible]	[illegible]	x	x			x	
Barnes County Wildlife Federation	x			[illegible]	[illegible]			x	x		x	
Tri County Irrigation District				[illegible]	[illegible]	[illegible]		x			x	
Fargo Wildlife Club				[illegible]	[illegible]	[illegible]		x			x	
[illegible] and Wildlife Club					[illegible]	[illegible]		x	x		x	
Lower Sheyenne Citizens Advisory Committee	x	x		[illegible]			x	x			x	x
Regional Governments												
Lake Agassiz Regional Council	x	x	[illegible]			[illegible]	x				x	x
Red River Regional Council	x	x	[illegible]			96300	x	x			x	x
South Central Regional Council	x	x	[illegible]			78381	x	x			x	x
County Governments												
Cass County Soil Conservation [illegible]		x	[illegible]			[illegible]	x	x	x		x	x
Cass County Health Department	x					[illegible]	x	x	x		x	
Southeast Cass Water Management Board				[illegible]		[illegible]	x	x	x		x	x
Cass County Drain Board						[illegible]	x	x	x		x	x
Cass County Park Board				[illegible]				x	x		x	x
Cass County Planning Commission				[illegible]		[illegible]	x	x	x		x	x
Richland County Township Association						18089	x	x	x		x	x
Richland County Park Board				[illegible]		18089		x	x		x	x
Richland County Planning Commission				4			x	x	x			x
Ransom County Water Management Board				3		[illegible]	x	x	x		x	x
Ransom County Park Board				[illegible]		[illegible]		x	x		x	x
Ransom County Planning Commission	x	x		[illegible]			x	x	x		x	x
Barnes County Water Management Board			[illegible]	3		[illegible]	x	x	x		x	x
Barnes County Planning Commission				6		[illegible]	x	x	x		x	x
Cass County Township Officers Association	x			8		[illegible]	x	x	x		x	x
Richland County Township Officers Association	x			9		[illegible]	x	x	x		x	
Ransom County Township Officers Association	x			[illegible]			x	x	x		x	
Barnes County Township Officers Association				5		[illegible]		x	x		x	
Local Governments												
Fargo-Moorhead Metropolitan Council of Governments	x	x	5				x	x			x	x
Fargo Planning Commission	x		6	11			x	x	x	x	x	x
West Fargo Planning Commission		x		8		[illegible]	x	x	x		x	x
Kindred City Government	x			[illegible]		[illegible]	x	x	x		x	
[illegible] City Government			[illegible]			[illegible]	x	x			x	x
[illegible] City Government	x		[illegible]	6		560	x	x			x	x
[illegible] City Planning Commission	x			5		[illegible]	x	x			x	x
[illegible] Township	x			[illegible]		[illegible]	x	x	x		x	x
Harwood Township				[illegible]			x	x			x	
[illegible] Township				5			x	x			x	
Stanley Township		x		5			x	x			x	
Warren Township				5		[illegible]	x	x	x		x	
Normanna Township				5			x	x			x	x

Source: [illegible] and personal interviews [illegible] September [illegible]

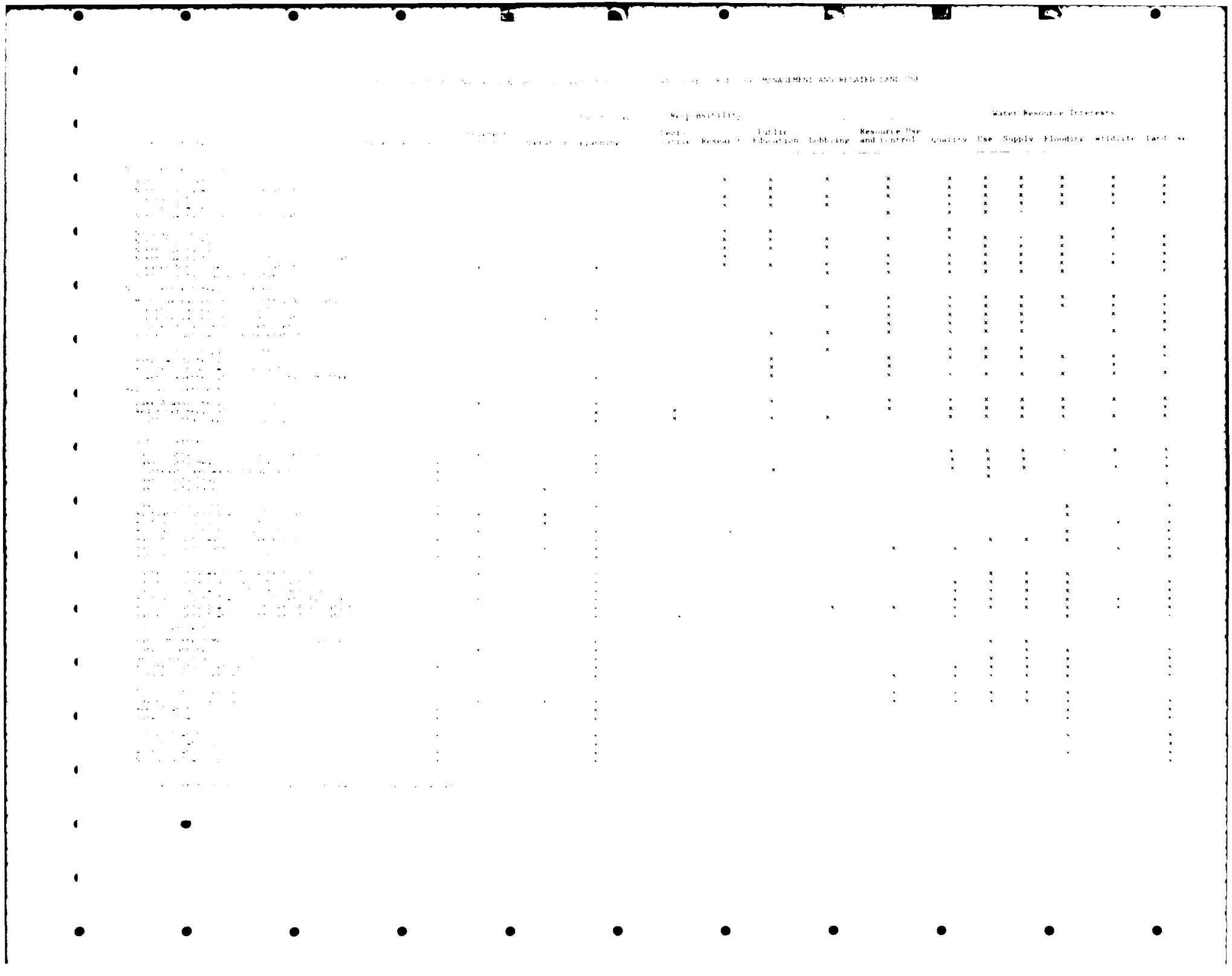

TABLE A-[illegible] [illegible]ATED A[illegible]TIVITIES AND [illegible]OAL [illegible] ORGANIZATIONS

Activities

Organization	Education	Planning	Policy	Development	Management	Legal Political	General Water [illegible]	Mediation	Education	Planning	[illegible]	Develop-ment	Manage-ment	[illegible]	Legal-Political
Non-Government State Level															
Audubon Society	x									x				x	x
North Dakota Wildlife Federation	x			x		x			x						x
Sierra Club	x	x				x								x	x
League of Women Voters			x					x	x		x				x
North Dakota Stockmen's Association			x	x	x										x
Natural [illegible] Society	x		x			x			x					x	
North Dakota Farmers Union		x						x							x
North Dakota Farm Bureau	x		x			x									x
North Dakota Association of Soil Conservation D[illegible]					x				x					x	x
Greater North Dakota Association	x		x					x							x
North Dakota League of Cities			x			x									x
Non-Government Regional Level															
Minn-Dak Farmers Flood Control Association	x	x		x						x					
Sheyenne Valley Association	x	x	x												x
Sheyenne Valley Grazing Association			x	x	x								x		
Southeast Cass Rural Water Users		x			x								x		
Barnes County Wildlife Federation			x	x									x		x
Tri-County Irrigation District											x				
Fargo Wildlife Club			x											x	
Kindred Gun and Wildlife Club					x				x						x
Lower Sheyenne Citizens Advisory Committee	x									x					
Regional Governments															
Lake Agassiz Regional Council		x										x			x
Red River Regional Council		x													x
South Central Regional Council	x	x													x
County Governments															
Cass County Soil Conservation Service	x			x	x								x		
Cass County Health Department		x					x	x				x			
Southeast Cass Water Management Board		x		x	x		x						x		
Cass County Drain Board					x								x		
Cass County Park Board					x								x		
Cass County Planning Commission		x					x			x					
Richland County Township Associations					x		x						x		
Richland County Park Board					x								x		
Richland County Planning Commission		x					x			x		x	x		
Ransom County Water Management Board		x			x		x					x			
Ransom County Park Board				x	x								x		
Ransom County Planning Commission		x								x					
Barnes County Water Management Board					x		x								
Barnes County Planning Commission		x								x					
Cass County Township Officers Association															x
Richland County Township Officers Association	x		x												x
Ransom County Township Officers Association	x							x							x
Barnes County Township Officers Association	x														x
Local Governments															
Fargo-Moorhead Metro Council of Government		x	x							x					x
Fargo Planning Commission				x	x					x					
West Fargo Planning Commission		x					x			x		x			
Kindred City Government		x					x			x					
Horace City Government		x			x					x			x		
Lisbon City Government				x						x			x		
Valley City Planning Commission		x		x						x			x		
Reed Township		x					x					x	x		
Harwood Township		x								x					
Barnes Township		x					x			x		x	x		
Stanley Township		x					x			x		x			
Warren Township		x					x			x		x	x		
Normanna Township		x					x						x		

Source: From phone and personal interviews completed September, 1977

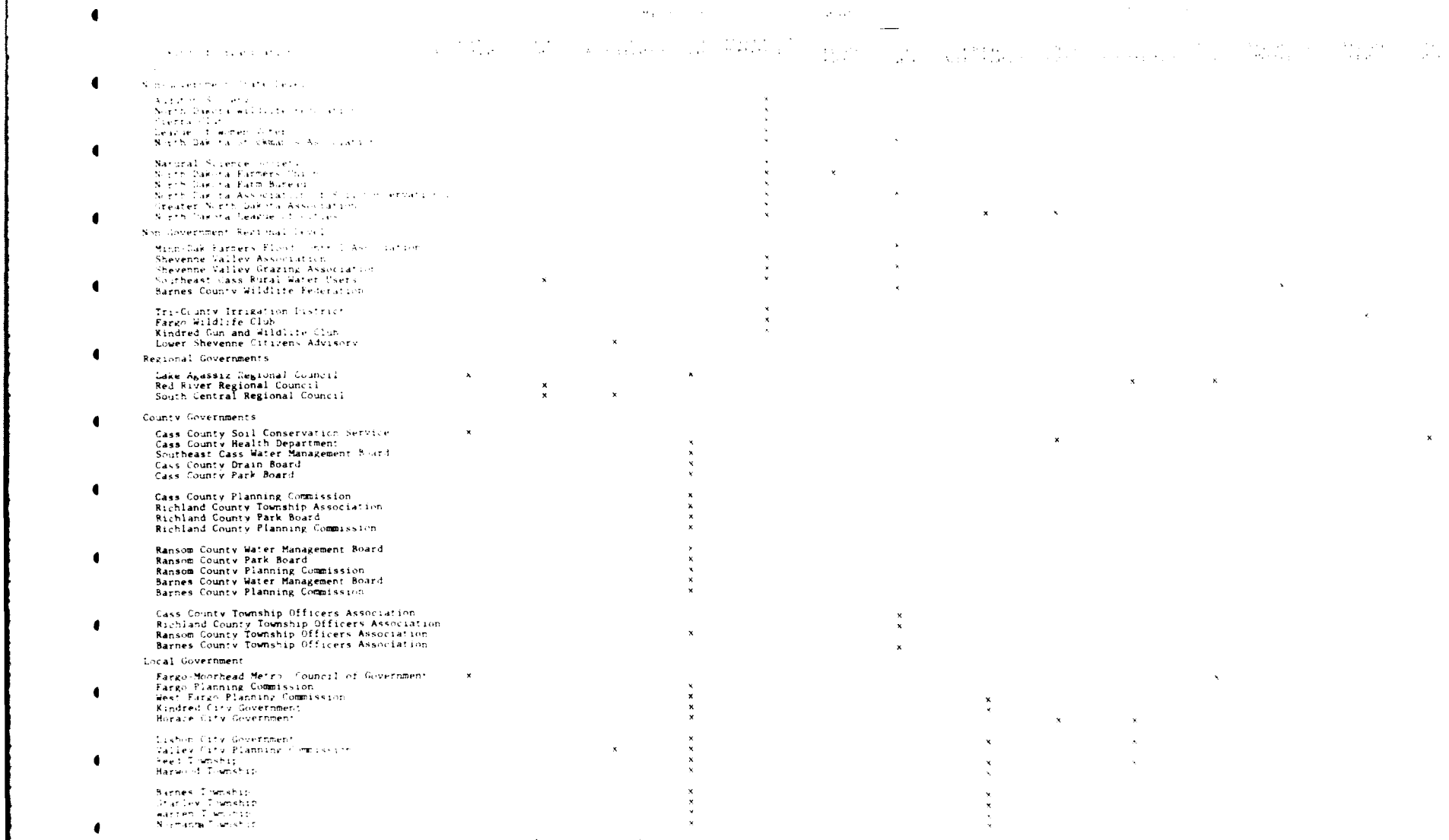

TABLE A-5: ORGANIZATIONS NAMED AS HAVING CONTACT WITH PROFILED ORGANIZATIONS

Contact Organizations	Profiled Organizations
Army Corps of Engineers	AUDB, MDFFC, LCAC, RRRC, SECWMB, FPC, WFPC, LCG
Bureau of Reclamation	AUDB, TCID
U.S. Geological Survey	AUDB
U.S. Fish and Wildlife	AUDB, NDWF, FWC, CCSC
U.S. Dept. of Agriculture (SCS)(ASCS)	NDWF, NDFB, NDASC, CCSC, CCDB, RCWMB, BCWMB
U.S. Forest Service	SVA, SVGA, RACTOA
Environmental Protection Agency	WFPC
Federal Housing Authority	WFPC
Housing and Urban Development	WFPC
State Government Units (All Concerned)	SIERR
State Water Commission	AUDB, LWV, NDFU, MDFFC, SVGA, SECRWU, TCID, RRRC, SECWMB, CCDB, RCTA, RCWMB, BCWMB, FMMCG, LCG, WFPC
State Health Department	LWV, NDSA, NDFU, NDLC, LARC, SCRC, CCHD, CPC, WFPC, LCG
North Dakota Game and Fish	AUDB, NDWF, FWC, CCSC, CCPD, RCPD, RACTOA
State Tax Department	NDSA, HCG
ASCS State Committee	NDASC, MDFFC
Extension Service of Universities	NDASC, CCHD
Garrison Diversion Conservancy District	GNDA
North Dakota Legislative Council	NDLC
Minnesota Department of Natural Resources	MDFFC, FMMCG
State Parks and Outdoor Recreation	SVA, RCPD,RCPB
State Planning Department	LARC, RICTOA, KCG
State Highway Department	LARC, SCRC
State Employment Bureau	LARC
Lake Agassiz Regional Council	LWV, LCAC, CCTOA, RICTOA, RACTOA, FPC, HCG,VCPC, HT NT, RCWMB, RCPD
Souris-Red-Rainy River Basin Commission	NDFU, MDFFC
Red Lake River Basin Planning Commission (MN)	MDFFC
South Central Regional Council	KCG
County Health Department	CPC
County Governments	SECRWU, SCRC, CCHD, RCTA, RCPB, RCPC, BCPC, FMMCG, WFPC, RT, HT, BT, ST, WT, RCWMB, BCTOA
County Water and Drain Boards	SVGA, SECRWU, LCAC, RRRC, CCSC, SECWMB, CCDB, WFPC HCG, LCG, VCPC, MDFFC, CCTOA, RACTOA
County or City Park Board	RCPB, BCWF
Fargo-Moorhead Metro Council of Government	LCAC, LARC, CCHD, CPC, FPC, HT, WFPC
County-City Planning Commissions	LCAC, LARC, CCHD, FMMCG, FPC, KCG, HT, BT, ST
County SCS	SCRC
City Governments	LCAC, SCRC, SECWMB, BCPC, FMMCG, WFPC, RT, HT, BT, ST
Soil Conservation Districts	CCSC
Township Governments	SECWMB, RCPC, BCPC, WFPC
Sierra Club	AUDB, NDWF, SVA
North Dakota Wildlife Federation	AUDB, SIERR, BCWF, FWC, KGWC
Committee to Save North Dakota	AUDB
Audubon Society	NDWF, SIERR, SVA
National Rifle Association--United Sportsmen	NDWF
Northern Environmental Council (Duluth)	NSS
Ducks Unlimited	FWC
Local Branch of Recreational Organization	BCWF
Farmers Union	AUDB, GNDA
Farm Bureau	AUDB, NDSA, GNDA
Local units of service organizations	NDSA, GNDA, SVGA
Service organizations to ranching industry	NDSA
Water Users Association	GNDA, BCWF, RCTA
Greater North Dakota Association	NDLC
North Dakota League of Cities	GNDA, RICTOA
Watershed Districts	MDFFC
State Township Officers Association	CCTOA, RICTOA, RACTOA, WT, NT
Association of Counties	AC
Business and Industrial Development Department	KCG

Source: From phone and personal interviews completed September, 1977.

TABLE A-6 ORGANIZATIONAL OBJECTIVES, ASSOCIATED ACTIVITIES AND PROPORTION OF TIME AND BUDGET, IN PERCENT, FOR THE ACTIVITIES AND SOURCE OF FUNDING FOR ACTIVITIES BY KIND OF ORGANIZATION

Kind of Organization	Objective	Kind of Activity	% Budget	% Time	% Source**
ASCSSC NR*	Preserve & Control land-water resources	Advocate-assist conservation practices	*	*	1
BR 24,200,000***	Develop land and water resources	Irrigation development	*	*	1
		Developing wetlands & wildlife habitat	*	*	1
		Developing recreational areas	*	*	1
USFWS NR	Preservation protection of wildlife resources	Preserve and protect wetlands and wildlife habitat	25	*	1
		Manage fish and wildlife resources	65	*	1
		Sponsor recreational-educational programs	4	*	1
		Develop funding priorities for fish and wildlife programs	1	*	1
EPA NR	Enforce water quality regulations	Use permit or license system	*	*	1
		Regulate water quality	*	*	1
	Develop basic data-impact studies	Data collection-research	*	*	1
SCSB NR	Preserve and control land-water resources	Advocate conservation practice (tillage)	2	3	1
		Advocate conservation practice (cover cropping and trees)	20	30	1
	Maintain and enhance water quality	Manage grassland (assist and control)	12	18	1
		Advocate conservation practices(tillage)	4	6	1
		Irrigation development	2	3	1
SWC 2,700,000	Water for human and livestock consumption	Provide water for human consumption	25	25	2
		Maintain water quality on agricultural land	25	25	2
	Assist irrigation development	Use of permit or license system	15	15	2
		Irrigation development	5	5	2
		Enforce drainage regulation	5	5	2

Kind of Organization	Objective	Kind of Activity	% Budget	% Time	% Source**
	Assist in flood control management	Small impoundments, stock ponds	10	10	2
		Diking and bank stablization	15	15	2
SDH	Provide water for humans and livestock	Regulate water quality	*	*	2
546,000		Data collection and research	*	*	2
NDGF	Maintain or enhance water quality	Environmental education	*	*	*
3,187,286		Data collection and research	5	5	1,5
	Manage wetlands area	Acquire and develop wetlands-wildlife habitat	10	1	1-5
		Small impoundments	6	5	1-5
	Manage dryland habitat	Acquire and develop wildlife upland habitat	10	1	1-5
		Assist development conservation (cover, trees)	*	1	*
NDSPOR	Protect natural shorelines-waterways	Enforce drainage regulations	*	*	2
1,280,103	Maintain-enhance water quality	Operate park systems	*	*	2
		Data collection-research	*	*	2
		Meet to discuss issues-problems	*	*	2
	Planning recreation (land & water)	Planning water use, supply, quality	*	*	2
	Lobby or develop legislation	Develop state parks-scenic rivers	*	*	2
	Develop recreation sites	Develop recreational areas	*	*	2
		Planning water use, supply, quality	*	*	2
	Control drainage system	Manage wetlands areas	*	*	2
	Develop recreation sites	Planning-land use, zoning (recreational)	*	*	2
NDSP	Plan asst. protection land-water use	Coordinate and support planning	15	15	2
GDCDC	Assist in irrigation development	Irrigation development	*	*	2
587,338	Stabilization of economy through develop.	Water for human consumption	*	*	2
		Develop recreational areas	*	*	2
		Irrigation development	*	*	2
Non-government					
NDWF	Public education on environmental issues	Sponsor education-recreational programs	*	*	4
NR					

Kind of Organization	Objective	Kind of Activity	% Budget	% Time	% Source**
		Provide information to govt. and public	*	*	4
	Develop wetlands areas	Develop wetlands-wildlife habitat	*	*	4
	Monitor projects, proposals, regulations	Meeting to discuss issues and problems	*	*	4
SIERR	Protect and preserve natural resources	Environmental education	*	*	4
NR		Lobbying, resolving, developing legislation	*	*	4
		Promote planning on resource issues	*	*	4
AUDB	Monitor projects, proposals, regulation	Environmental education	*	*	4
NR		Provide information to govt. and public	*	*	4
	Protect and preserve natural resources	Environmental education	*	*	4
		Manage fish and wildlife resources	*	*	4
	Planning asst. development of land-water	Provide information to govt. and public	*	*	4
LWV	Provide public education on environment	Data collection-research	*	*	4
4,514	Lobby or develop legislation	Planning water use, zoning, recreation	*	*	4
	Provide information to govt. and public	Provide information to govt.& public	*	*	4
MDFFC	Conduct or attend meetings	Meeting to discuss issues and problems	*	*	4
1300		Stop or restrict drainage	*	*	4
	Planning-solving flood problems	Promote planning on resource issues	*	*	4
		Diking and Bank stabilization	*	*	4
	Assist in flood control management	Small structural controls	*	*	4
LSCAC	Encourage citizen participation	Assist citizens Advisory councils	*	*	1
NR		Propose alternative solutions to water problem	*	*	1

Kind of Organization	Objective	Kind of Activity	% Budget	% Time	% Source**
SVA None	Protect and preserve natural resources	Attempt to stop Kindred Dam		*	4
		Planning landuse, zoning, recreational		*	4
		Develop state park, scenic rivers	30	*	4
		Sponsor recreational-educational programs		*	4
	Oppose specific land use	Meeting to discuss issues and problems	*	*	4
	Oppose indiscriminate drainage	Lobbying, resolving, developing legislation	*	*	4
SVGA	Control drainage systems	Small impoundments, stockponds	*	*	4
156,786	Provide water for humans and livestock	Small impoundments, stockponds	*	*	4
	Preserve land and water resources	Manage or assist in grasslands control	*	*	4
SECRWV	Provide water for humans and livestock	Control water supply through commission and boards	*	*	4
BCWF 10,000	Protect or preserve natural resources	Favor Garrison Diversion	*	*	*
Regional					
SRRRC 108,600	Develop natural resources	Inter-organizational coordination of plans	10	10	1,2
		Prepare basin-wide plan	53	53	1,2
		Recommend priorities for data collection-analysis	17	17	1,2
		Foster studies requiring planning	8	8	1,2
LARC 148,327	Develop housing in region	Organize housing authority			
		Development of regional plan			
	Planning asst. for protection of land-water	Funding assistance-developing priorties			
		Planning, water use, supply, quality			
	Stabilize economy through development	Coordinate planning at lower govt. level			
		Funding assistance, developing funding priorities			

Kind of Organization	Objectives	Kind of Activity	% Budget	% Time	% Source**
	Develop recreational sites	Funding assistance, developing funding priorities			
		Planning-land use, zoning, recreational	60	60	1
	Planning, solving flood problems	Funding assistance, developing funding priorities			
		Planning-land use, zoning, recreational			
	Developing comprehensive water-land use plan	Coordinate planning a lower govt. level			
		Planning-land use, zoning, recreational			
	Protect and preserve natural resources	Advocate conservation practices (tillage)			
SCRC 34,284	Develop comprehensive water-land use plan	Development of region-wide plan	*	*	1
	Planning assistance for protection water-land	Coordinate planning at lower govt. level	*	*	1
	Develop basic data, research	Develop basic data research	*	*	1
	Provide information to govt. and public	Provide information to govt. and public	*	*	1
RRRC 32,847	Develop comprehensive water-land use plan	Assist local governments with larger agencies	*	*	1
		Coordinate planning at lower govt. level	*	*	1
		Planning-water use, supply, quality	*	*	1
USFS 50,000	Preserve-control land-water resources	Manage & assist in grassland control	*	*	1
		Manage fish and wildlife resources	*	*	1
		Maintain water quality on agricultural land	*	*	1
City					
FMCG 232,221	Coordinate govt. process in water-land use	Coordinate and support planning lower govt.	80	80	3

Kind of Organization	Objective	Kind of Activity	% Budget	% Time	% Source**
		Attempt to join metro-area water supplies	*	*	3
FPC 119,884	Develop area-wide land-water use plan	Planning, land use, zoning, recreational	<5	<5	3
		Small impoundments, stockponds	<5	<5	3
		Drain improvements	<5	<5	3
	Planning recreation (water and land)	Develop recreational areas	<5	<5	3
WFPC	Zoning, planning for development	Land use zoning regulations	*	*	3
NR	Developing comprehensive water-land plan	Planning water use, supply, quality	*	*	3
VCPC	Zoning, planning, development	Land use zoning regulation	*	40	*
NR					
LCG	Provide water for humans and livestock	Provide water for humans and livestock	*	*	*
NR	Control drainage systems	Maintain streams and drains	*	*	*
	Develop recreation sites	Develop recreational areas	*	*	*
KCG	Provide water for humans and livestock	Provide water for humans and livestock	*	*	3
NR		Data collection, research, study	10	*	3
	Planning, solving flood problems	Diking and bank stabilization	*	*	3
HCG	Planning, solving flood problems	Apply fed. funds for sewage, drainage	*	*	*
NR		Diking and bank stabilization	*	*	3
	Provide water for humans and livestock		*	*	*
County and Township					
CCSCS	Preserve and control land-water resources	Advocate and assist conservation (tillage)	60	60	1
		Advocate and assist conservation (cropping)	5	5	1
	Preserve and control land-water resources	Diking and bank stabilization	20	20	1
	Maintain or enhance quality	Maintain water quality on Agricultural land	5	5	1
CCHD	Maintain or enhance water quality	Planning water use, supply, quality	*	*	*
40,000	Enforce water quality regulations	Regulate water quality	*	*	*

Kind of Organization	Objective	Kind of Activity	% Budget	% Time	% Source**
CCTOA NR	Coordinate govt. processes water-land use	Meeting to discuss issues and problems	*	*	3
		Land use zoning regulation	*	*	3
		Assist in obtaining bridges on township roads	*	*	3
RICTOA	Review and advise on water issues	Lobbying, resolving, developing legislation	*	5	3
		Meeting to discuss issues and problems	*	20	3
RACTOA 240	Coordinate govt. processes water-land plans	Coordinate and support planning lower govt.	*	25	*
BCTOA None	Conduct or attend meetings	Meeting to discuss issues and problems	*	*	*

Source: From personal interviews completed September, 1977.
*Respondent did not provide information
**1 = federal; 2 = state; 3 = local; 4 = private; and 5 = license fees
*** Organization's budget for current or preceding year.

TABLE A-7: MAJOR WATER PROBLEMS AND THEIR CAUSES BY KIND OF ORGANIZATION

Kind of Organization	Problem	Proposed Causes
State Level		
ASCSSC	Agricultural pollution	Agricultural runoff
	Soil erosion	Intensive agricultural use
BR	General flooding	Natural causes
	Stream flow variation	Natural causes, increased water use
USFF	Poor watershed management	Poor coordination among govt. units. Intensive agricultural use
	Urban flooding	Excessive drainage, Improper development
	Flood plain development	None proposed
	Unrestricted drainage	Excessive drainage
	Poor water quality	Feedlots, Point-source pollution
EPA	Agricultural pollution	Feedlots, Agricultural runoff
SCSB	Stream bed erosion	Water movement eroding streams
	Stream flow variation	Natural causes
	Human pollution	Point-source pollution, Feedlots
SWC	Concern for future supplies	Increased water use, Low stream flows
	General flood problems	Flood plain development, Excessive drainage, flow restrictions
	Channel obstructions	Flow restrictions, Flood plain development
	Unrestricted drainage	Lack of enforcement of drainage regulations
	Stream flow variation	Natural causes, Increased water use
	Lack of adequate recreation	Increased water use
SDH	Poor water quality	Agricultural runoff, Point-source pollution
NDGF	Human pollution	Point-source pollution
	Agricultural pollution	Feedlots
	Unrestricted drainage	Intensive Agricultural use
	Effects of proposed project	None proposed

Kind of Organization	Problem	Proposed Causes
	Wildlife habitat destruction	Authorization of Kindred Dam
	Land use conflicts	Authorization of Kindred Dam
NDSPOR	Agricultural pollution	Point-source pollution, Feedlots
	Unrestricted Drainage	Natural causes
	Channel obstructions	Natural causes
NDSP	None	
GDCDC	General environmental issues	Excess concern by environmental groups, Return flows
Non-Governmental		
NDWF	Unrestricted drainage	Intensive Agricultural use, Not enforcing drainage regulations
	Effects of proposed project	None proposed
SIERR	Agricultural pollution	Feedlots
	Human pollution	Point-source pollution
	Channel obstructions	Natural causes, Intensive agricultural use
	Effects of proposed project	Authorization of Kindred Dam
AUDB	Solutions not basin-wide	Decision-making too complex
LWV	None	
NDFFC	Unrestricted drainage	Not enforcement of drainage regulations, Lack of govt. coordination
	Solutions not basin-wide	Unequal political balance, Lack of govt. coordination
LSCAC	None	
SVA	Flood plain development	Improved development
	Unrestricted drainage	Intensive agricultural use
	Solutions not basin-wide	Lack of govt. coordination
SVGA	Ground water conditions	Excessive drainage
	Unrestricted drainage	Destruction of the ecosystem
SECRWV	Ground water conditions	Limited supply
BCUF	Poor water quality	Agricultural runoff
	Stream flow variation	Natural causes
Regional		
SRRC	General flood problems	Natural causes, excessive drainage

Kind of Organization	Problem	Proposed Causes
	Poor water quality	Point-source pollution, natural causes
	Concern for future water supplies	Low stream flow, urban-industrial growth
	Land use conflicts	Urban growth
LARC	General flood problems	Excessive drainage
	Poor water quality	Natural causes, Point-source pollution, Agricultural runoff
	Land use conflicts	Increased popularity of scenic areas
	Unrestricted drainage	Intensive Agricultural use
	Flood plain development	Urban sprawl, Rural water districts
SCRC	Poor water quality	Agricultural runoff, Point-source pollution
	Flood plain development	Urban sprawl
	Ground water conditions	Limited supply
	General environmental issues	Destruction of ecosystem, Increased popularity of scenic areas
RRRC	Solutions are not basin-wide	Diking, Excessive drainage
USFSL	Vehicle damage by recreation	Natural causes, Destruction of ecosystem
	Land use conflicts	Increased popularity of scenic areas
	Ground water conditions	Excessive irrigation
City		
FMICG	Concern for future supplies	Increased water use, Limited supply
FPC	General flood problems	Intensive Agricultural use, decision-making too complex
	Concern for future supplies	Increased water use, general flood problems
	Flood plain development, zoning	Improper development
WFPC	General flood problems	Excessive drainage, stream characteristics
	Concern for future supplies	Increased water use, limited supply
	Land use conflicts	Flood plain management
VPCP	Flood plain development	Poor flood plain definition
	Concern for future supply	Stream characteristics, Present and future needs, Increased use
LCG	Concern for future supply	Increased water use, Natural causes
	General flood problems	Natural causes, Flow restrictions
	Agricultural pollution	Feedlots

Kind of Organization	Problem	Proposed Causes
KCC	General flood problems	Excessive drainage, Stream characteristics
	Stream bed erosion	Stream characteristics
	Stream flow variation	Natural causes
HCC	General flood problems	Excessive drainage, Natural causes
County and Township		
CCSCS	General flood problems	Natural causes
	Soil erosions	Intensive agricultural use, Natural causes
CCHD	Stream flow variations	Natural causes, Increased water use
	Poor water quality	Low stream flows, Poor watershed management
CCTOA	None	
RICTOA	Effects of the proposed project	Authorization of Kindred Dam
RACTOA	Unrestricted drainage	Intensive Agricultural use
	Ground water conditions	Excessive irrigation
BCTOA	None	

Source: From personal interviews completed September, 1977.

Causes are listed for each respondent's proposed water problem.

TABLE A-8: WATER PROBLEMS, THEIR PROPOSED SOLUTIONS, EFFECT ON OWN ORGANIZATION OF SOLUTIONS RELATIVE TO ACTIVITIES, GEOGRAPHIC AREA, VALUE OF PROPERTY, REVENUES AND EXPENDITURES

Kind of Organization	Problem	Solution Proposed	Gains and Losses on Organization*				
			Activities	Geographic	Value of Property	Revenues	Expenditures
State							
ASCSSC	Agricultural pollution	Feedlot holding lagoons	0	0	0	0	0
	Soil erosions	Cover crops, better tillage, sodded waterways	0	0	0	0	0
BR	General flooding	Study-citizens' participation	0	0	0	0	0
	Stream flow variation	Diversion of water to increase flow	0	0	0	0	0
USUF	Poor watershed management	Stop wetland drainage	+	+	0	0	0
		Develop greenways for recreation & wildlife	+	+	?	?	?
	Urban flooding	Law enforcement--More laws	0	0	0	0	0
	Wildlife habitat destruction	Stop wetland drainage	+	+	+	0	0
	Flood plain development	Flood plain zoning	0	0	0	0	0
	Unrestricted drainage	Better drainage regulation	0	0	0	0	0
	Poor water quality	Better zoning	0	0	0	0	0
EPA	Agricultural pollution	Better management practices	0	0	0	0	0
		Better zoning	+	0	+	+	+
		Use of cover crops, better tillage, sodding	+	0	+	+	+
SCSB	Stream bed erosion	None					
	Stream flow variation	Build small reservoirs	+	0	0	0	0
		Diversion of water to increase flow	+	0	0	0	0
		None necessary					
	Human pollution	Better zoning	+	0	0	+	+
SWC	Concern for future supplies	Find more groundwater supplies	+	0	+	+	+

Kind of Organization	Problem	Solution Proposed	Gains and Losses on Organization				
			Activities	Geographic	Value of Property	Revenues	Expenditures
		Build impoundments	0	0	0	0	0
		Diversion of water to increase flow	+	0	+	+	+
	General flood problems	Impoundments	+	0	+	+	+
		Flood plain zoning	+	0	+	+	+
		Controlled drainage (gates, small dams)	+	0	+	+	+
		Better drainage regulation	+	0	+	+	+
		Diking	+	0	+	+	+
		Diversion	+	0	+	+	+
	Channel obstructions	Snagging and cleaning	+	0	+	+	+
		Channelization	+	0	+	+	+
		Flood plain zoning	+	0	+	+	+
	Unrestricted drainage	Better drainage regulation	+	0	+	+	+
	Stream flow variation	Build impoundments	+	0	+	+	+
		Diversion of water to increase flow	+	0	+	+	+
	Lack of adequate recreation	Small impoundments	+	0	+	+	+
SDH	Poor water quality	Control agricultural pollution	+	0	+	+	+
		Implement best management practices	+	0	+	+	+
NDGF	Human pollution	Better zoning	+	0	+	+	+
	Agricultural pollution	Better zoning	+	0	+	+	+
	Unrestricted drainage	Stop wetland drainage	+	0	+	+	+
	Effects of proposed project	Flood plain zoning	0	0	0	0	0
	Wildlife habitat destruction	Stop wetland drainage	+	0	+	+	+
	Land use conflicts	Change land use so flood area lived in	0	0	0	0	0
NDSPOR	Agricultural pollution	Implement best management practices	0	0	0	0	0
		Better zoning	+	0	?	0	0

Kind of Organization	Problem	Solution Proposed	Gains and Losses on Organization				
			Activities	Geographic	Value of Property	Revenues	Expend-itures
	Unrestricted drainage	Control drainage by gates, small dams	+	0	0	+	+
	Channel obstructions	Create minimal passage areas along streams	+	0	0	+	+
NDSP	None						
GDCDC	General environmental issues	Build, monitor and adjust Garrison Diversion	0	0	0	0	0
Non-governmental							
NDUF	Unrestricted drainage	Diking	+	0	+	+	+
		Flood plain zoning	+	0	+	+	+
		Better drainage regulation	+	0	+	+	+
	Effects of proposed project	Study, citizen participation	+	0	+	+	+
SIERR	Agricultural pollution	Educate those who are polluting	+	0	?	+	+
	Human pollution	Educate those who are polluting	+	0	?	+	+
	Channel obstruction	Snagging and cleaning	+	0	0	?	+
	Effects of proposed project	Study, citizen participation	+	0	+	0	0
		Flood plain zoning	+	0	+	0	0
AUDB	Solutions, not basin-wide	Study, citizen participation	+	0	0	?	+
LWV	None						
MDFFC	Unrestricted drainage	Better drainage regulation	+	0	?	0	0
		Control drainage with gates, small dams	+	0	?	0	0
		Impoundment	+	0	?	0	0
	Solutions not basin-wide	Better project criteria	+	0	?	0	0
		Study, citizen participation	+	0	?	0	0
LSCAC	None						
SVA	Flood plain development	Flood plain zoning	0	0	0	0	0

Kind of Organization	Problem	Solution Proposed	Gains and Losses on Organizations: Activities	Geographic	Value of Property	Revenues	Expenditures
		Develop residences outside flood area	0	0	0	0	0
SVA	Unrestricted drainage	Better drainage regulation	+	0	+	+	+
	Solutions not basin-wide	Study, citizen participation	+	0	0	0	0
SVGA	Ground water conditions	Study, citizen participation	0	0	0	0	0
	Unrestricted drainage	Control drainage with gates, small dams	0	0	0	0	0
		Diking	0	0	0	0	0
		Study, citizen participation	0	0	0	0	0
SECRUV	Ground water conditions	Regulation of water use	0	0	0	0	0
BCUF	Poor water quality	None					
	Stream flow variation	None					
Regional							
SRRC	General flood problems	Flood plain management, land use, reservoirs, channelization, diking	+	0	0	0	0
	Poor water quality	Land use, waste treatment	+	0	0	0	0
	Concern for future water supply	Impoundments, diversion, ground water development	+	0	0	0	0
	Land use conflicts	Better zoning, legislation	+	0	0	0	0
LARC	General flood problems	None					
	Poor water quality	Use of cover crops, tillage, sodding	0	0	0	0	0
		More funds for treatment plants	+	0	0	0	0
	Land use conflicts	Proper planning	+	0	0	+	+
	Unrestricted drainage	Better drainage regulation	0	0	0	0	0
	Flood plain development	Flood plain zoning	+	0	0	0	0
SURC	Poor water quality	Better zoning	0	0	0	0	0
		Educate those that are polluting	0	0	0	0	

Kind of Organization	Problem	Solution Proposed	Gains and Losses on Organization: Activities	Geographic	Value of Property	Revenues	Expenditures
	Flood plain development	Flood plain zoning	+	0	+	+	+
	Ground water conditions	Rural water districts	+	0	+	0	0
		Regulation of water use	+	0	+	0	0
	General environmental issues	Proper planning	+	0	+	0	0
PRRC	Solutions are not basin-wide	Study, citizen participation	+	0	0	0	0
USFSL	Vehicle damage by recreation	Regulate recreational use	+	0	+	+	+
	Land use conflicts	Proper planning	+	0	0	+	+
	Ground water conditions	Regulation of water use	+	0	+	0	0
City							
FMMCG	Concern for future supplies	Diversion of water to increase flow	0	0	0	0	0
		Thorough study of population, industrial need	+	0	0	?	+
FPC	General flooding problems	Control drainage with gates, small dams	0	0	+	0	0
		More authoritarian decision-making	0	0	+	0	0
	Concern for future water supply	Regulation of water use	0	0	+	0	0
	Flood plain development	Proper planning	0	0	+	0	0
WFPC	General flooding problems	Diking	+	0	+	?	?
		Flood plain zoning	+	0	+	?	?
		Control drainage with gates, small dams	+	0	+	?	?
	Concern for future supplies	Find more groundwater supplies	+	0	0	0	0
		Use of river water	+	0	0	0	0
	Land use conflicts	Flood plain zoning	+	0	+	?	?

Kind of Organization	Problem	Solution Proposed	Gains and Losses on Organization: Activities	Geographic	Value of Property	Revenue	Expenditures
VCPC	Flood plain development	Flood plain zoning	-	0	+	0	0
	Concern for future water supply	Use of river water	+	?	+	0	0
LCG	Concern for future water supply	Build small reservoirs	+	0	+	+	+
		New city water system	+	0	+	+	+
	General flood problems	Diking	+	0	+	+	+
		Snagging and cleaning	+	0	+	+	+
	Agricultural pollution	Better zoning	0	0	0	0	0
		Require holding lagoons for feedlots	0	0	0	0	0
KCG	General flood problems	Diking	+	?	+	0	+
	Stream bed erosion	Snagging and cleaning	0	0	0	0	0
	Stream flow variation	None					
HCG	General flood problems	Better drainage regulation	0	0	0	0	0
		Impoundment	?	0	+	0	0
County and Township							
CCSCS	General flood problems	Use of cover crops, tillage, sodding	+	0	+	+	+
		Control drainage with gates, small dams	+	0	+	+	+
	Soil erosion	Use of cover crops, tillage, sodding	+	0	+	+	+
		Control drainage with gates, small dams	+	0	+	+	+
CCHD	Stream flow variations	Build small reservoirs	+	0	0	+	+
	Poor water quality	Increased enforcement of regulations	+	0	?	+	+
		Educate those who are polluting	+	0	?	+	+
CCTOA	None						
RICTOA	Effects of proposed project	Study, citizen participation	+	0	+	+	+

Kind of Organization	Problem	Solution Proposed	Gains and Losses on Organization: Activities	Geographic	Value of Property	Revenues	Expend-itures
RACTOA	Unrestricted Drainage	Use of cover crops, tillage, sodding	+	0	?	0	0
		Plug drains where land should not be drained	+	0	?	0	0
	Ground water conditions	Regulation of water use	+	0	?	0	0
BCTOA	None						

A-8 (7)

Source: From personal interviews completed September, 1977.

*0 = no gains or losses
+ = gains
- = losses
? = unknown

TABLE A-9: PROPOSED SOLUTIONS OF PROBLEMS AND ESTIMATIONS OF INCREASED OR DECREASED FUNCTIONS FOR OTHER ORGANIZATIONS

Kind of Organization	Proposed Solution	Other Organization Increased or Decreased Function
State Level		
ASCSSC	Feedlot holding lagoons	USSCS
	Cover crops, better tillage, sodding waterways	FR
BR	Study citizens' participation	ACE
	Diversion of water to increase flow	ACE, SWC, WDB, WUA, RWD, SGS, ID
USWF	Stop wetland drainage	USSCS, SWC, SFS (ACE)
	Develop greenways for recreation and wildlife	NDGF, USSCS, USFS
	Flood plain zoning	ACE, LCPC
	Stop wetland drainage	USSCS, SWC, SFS
	Flood plain zoning	ACE, LCPC
	Better drainage regulation	USSCS, SWC
	Better zoning	EPA, SWC
EPA	Better management practices	USSCS
	Better zoning	ACE, BR, SWC, WDB, ID
	Use of cover crops, better tillage sodding	UES
SCSB	None	-
	Build small reservoirs	BOR, PCD
	Diversion of water to increase flow	None
	None necessary	-
	Better zoning	EPA, SHD
SWC	Find more groundwater supplies	ACE, BR, CG
	Build impoundments	ACE, BR
	Diversion of water to increase flow	BR, GDCD
	Impoundments	ACE
	Flood plain zoning	LCPC
	Controlled drainage (gates, small dams)	USSCS
	Better drainage regulation	WDB
	Diking	ACE, WDB
	Diversion	ACE, BR
	Snagging and cleaning	USSCS
	Channelization	ACE
	Flood plain zoning	SPC, LCPC
	Better drainage regulation	WDB
	Build impoundments	ACE, USFWS, SHD, NDGF, WDB
	Diversion of water to increase flow	ACE, BR, SHD, WDB
	Small impoundments	SPOR, NDGF, WDB

Kind of Organization	Proposed Solution	Other Organization Increased or Decreased Functions*
SPN	Control agricultural pollution	USSCS
	Implement best management practices	USSCS, CC, LCPC
NDGF	Better zoning	SWC, SHD
	Better zoning	SWC, SHD
	Stop wetland drainage	USSCS, USFWS
	Flood plain zoning	HUD, SPD, LCPC
	Stop wetland drainage	USSCS, SWC, USFWS
	Change land use so flood area lived in	USSCS, SPC, LCPC
NDSPOR	Implement best management practices	USSCS, FU, FB
	Better zoning	SWC, WDB, CG, TG
	Control drainage by gates, small dams	SWC
	Create minimal passage areas along streams	-
NDSR	None	
GDCDC	Build, monitor and adjust Garrison Diversion	USSCS, SHD
Non-Governmental		
NDWF	Diking	ACE, SWC
	Flood plain zoning	LCPC
	Better drainage regulation	WDB, SWC
	Study, citizen participation	ACE
SIERR	Educate those who are polluting	SHD, NDGF, SPOR
	Educate those who are polluting	SHD, NDGF, SPOR
	Snagging and cleaning	ACE, USSCS, FR
	Study, citizen participation	ACE
	Flood plain zoning	ACE, LCPC, CG
AUDB	Study, citizen participation	ACE, SIERR, SVA, FU, FB, USSCS, EPA, SHD, SRRRC (SVA)
LWV	None	
NDFFC	Better drainage regulation	SWC, WDB
	Control drainage with gates, small dams	ACE, USSCS
	Impoundment	ACE
	Better project criteria	ACE, SWC, SRRRC, WDB, (ACE)
	Study, citizen participation	ACE, SWC, LARC, SRRRC, WDB,
LSCAC	None	LSCAC, (ACE)
SVA	Flood plain zoning	SPD, RPC, LCPC
	Develop residences outside flood area	SPD, RPC, LCPC
	Better drainage regulation	SWC, CC, WDB
	Study, citizen participation	-
SVGA	Study, citizen participation	ACE, BR, SWC, WDB, (ACE, SVA)
	Control drainage with gates, small dams	BR, SWC, WDB, (ACE, SVA)

Kind of Organization	Proposed Solution	Other Organization Increased or Decreased Functions*
	Diking	ACE, SWC, WDB, (ACE, SVA)
	Study, citizen participation	ACE, SWC, WDB, (ACE, SVA)
SECRW	Regulation of water use	SWC, CC, WDB
RCMT	None	
	None	
Regional		
SRRRC	Flood plain management, land use, reservoirs, channelization, diking	SCD, CSCS, NPS, BR, ASCS, ACE, USFWS, SWC, NDGF, SCSSC, MDNR, SPOR, (USNG, FIA, SHID)
	Land use, treatment plants	ASCS, PHS, EPA, SHD, SCD
	Impoundment, diversion, ground water development	ACE, BR, USGS, SWC, SHD, SGS
	Zoning legislation	HUD, PSC, CC, LCPC, CG, TC
LARC	None	
	Use of cover crops, tillage, sodding	USSCS, UES
	More funds for treatment plants	SHD
	Proper planning	SPOR, SPD, SHID, RPC, LCPC
	Better drainage regulation	SWC, WDB
	Flood plain zoning	SWC, WDB, SHID
SCRC	Better zoning	SWC, WDB, LCPC
	Educate those that are polluting	USSCS, SCSSC, AGRI
	Flood plain zoning	SHD,LCPC
	Rural water districts	PCD, RUD
	Regulation of water use	SWC, WDB
	Proper planning	USSCS, NDGF, CC, TC, (PCD)
RRRC	Study, citizen participation	SRRRC, RPC
USFSL	Regulate recreational use	CS, FR
	Proper planning	RC
	Regulation of water use	ACE, USGS, SWC
City		
FMCG	Thorough study of population, industrial need	ACE, SWC, UES, MDNR
FPC	Control drainage with gates, small dams	SWC, NDGF, SPOR, WDB
	More authoritarian decision-making	SWC, WDB
	Regulation of water use	SWC, SHD, NDGF, WDB
	Proper planning	LCPC
WFPC	Diking	ACE, LCPB
	Flood plain zoning	CG, PCD
	Control drainage with gates, small dams	ACE, USSCS, SWC, CG
	Find more groundwater supplies	SWC, SHD, CG
	Use of river water	ACE, BR, CG
	Flood plain zoning	CG, PCD
VCPC	Flood plain zoning	ACE, FIA
	Use of river water	CG, ID

Kind of Organization	Proposed Solution	Other Organization Increased or Decreased Functions*
LCG	Build small reservoirs	ACE
	New city water system	FHA, HUD, LARC
	Diking	ACE, USNG
	Snagging and cleaning	USNG, BR
	Better zoning	SHD, WDB, LCPC
	Require holding lagoons for feedlots	USSCS, SHD
KCG	Diking	ACE
	Snagging and cleaning	ACE, USSCS
	None	
HCG	Better drainage regulation	SWC, SRRRC
	Impoundment	ACE
County and Township		
CCSCS	Use of cover crops, tillage, sodding	-
	Control drainage with gates, small dams	ACE, WDB
	Use of cover crops, tillage, sodding	TG, FR
	Control drainage with gates, small dams	TG, PCD, FR
CCHD	Build small reservoirs	ACE, WDB, SHD (FR)
	Increased enforcement of regulations	SHD
	Educate those who are polluting	SHD
CCTOA	None	
RICTOA	Study, citizen participation	AC, NDLC, ACE, LARC
RACTOA	Use of cover crops, tillage, sodding	WDB, CC
	Plug drains where land not to be drained	WDB, CC, USFWS
BCTOA	Regulation of water use	SWC, NDGF

Source: From personal interviews completed September, 1977.

*decreased functions are enclosed with parentheses.

TABLE A-10: COMMUNICATION NETWORK AND KINDS OF INTERACTION AMONG ORGANIZATIONS BY KIND OF ORGANIZATION AND FREQUENCIES

Respondent's Organization	Organization	Kinds of Relationships: Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activities by Law	Similar Activities by Practice
State Level								
ASCS	USSCS		x	x	x	x		x
	USFS		x	x	x	x		
	SWC		x	x	x	x		
	SHD		x	x	x	x		
	UES		x	x	x	x		
BR *	BLM		x	x	x	x		
	ACE		x	x	x	x	x	x
	USGS		x	x	x	x		
	USFW		x	x	x	x		
	USCSS		x	x	x	x		
	SWC	x	x	x	x	x	x	x
	SHD	x	x	x	x			
	UES		x	x	x	x		
	SPOR		x	x	x	x		
	SPD		x	x	x	x		
	WRC		x	x	x	x		
USFW	ACE		x	x	x	x	x	x
	BR	x	x	x	x	x		
	USSCS		x	x	x	x	x	x
	USFS		x	x	x	x		
	EPA		x	x	x	x	x	x
	SWC		x	x		x		
	NDGF	x	x	x	x	x	x	x
	GDCD			x	x	x	x	
	SHID	x	x		x	x	x	x
	PSC				x	x	x	x
	LARC			x	x	x		
	SIERR		x	x	x	x	x	x
	NDWF		x	x	x	x	x	x
	AUDB		x	x	x	x	x	x
	LSCAC		x		x			
	DLAB		x	x	x			
EPA	BLM		x	x	x	x		
	PHS		x	x	x	x		

Respondent's Organization	Organization	Kinds of relationship: Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activities by Law	Similar Activities by Practice
	ACE		x	x	x	x		
	USGS		x	x	x	x		
	SWC		x	x	x	x		
	SHD		x	x	x	x	x	x
	NDGF	x	x	x	x	x	x	x
	PSC		x	x	x	x		
	CG		x	x				
SCSB	ASCS	x	x		x	x	x	x
	ACE		x	x	x	x	x	x
	SWC	x	x		x	x		
	SCSSC	x	x		x	x		
	UES		x		x	x		
	LARC	x	x		x	x		
	WDB	x	x		x	x		
	SCD	x	x		x	x		
SWC	ACE		x	x	x	x	x	x
	BR		x	x	x	x	x	x
	USFWS		x	x	x	x	x	x
	USGS		x	x	x	x	x	x
	NDGF		x	x	x	x	x	x
	SHID		x	x	x	x	x	x
	GDCD		x	x	x	x	x	x
	WDB		x	x	x	x	x	x
	CG		x	x	x	x	x	x
SDH	USSCS		x	x	x	x		
	EPA		x	x	x	x		
	SWC		x	x	x	x	x	x
	NDGF		x	x	x	x		x
	SPD		x	x	x	x		
	SGS		x	x	x	x		
	CHD		x	x	x	x		
	LCPC		x	x	x	x		
NDGF	ASCS		x	x	x	x	x	x
	ACE	x	x	x	x	x		
	BR	x	x	x	x	x		
	USFWS	x	x	x	x	x	x	x
	USSCS		x	x	x	x	x	x
	USFS		x	x	x	x	x	x
	SWC		x	x	x	x		
	SHD		x	x	x	x		

Kinds of Relationships

Respondent's Organization	Organization	Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activities by Law	Similar Activities by Practice
	SPOR		x	x	x	x		
	SPD	x	x	x	x	x		
	SEID		x	x	x	x		
	NRC	x	x	x	x	x		
	WDB		x	x	x	x		
	LCPB		x	x	x	x		
	SCD		x	x	x	x		
NDSPOR	NPS		x	x	x	x	x	x
	BOR	x	x	x	x	x	x	x
	ACE		x		x	x		
	USFWS		x		x	x	x	x
	SORAB	x	x	x	x	x	x	x
	NRC		x	x	x	x		
	LARC		x	x	x	x	x	x
	LCPB		x	x	x	x		
	SIERR		x	x		x	x	x
	NDWF		x	x		x	x	x
	LSCAC		x	x		x		
NDSP	NRC		x	x	x	x		
	SCRC		x	x	x	x		
	REAP		x	x	x	x	x	x
	LCPC		x	x	x	x		
GDCDC	BR	x	x	x	x	x		
	USFWS		x	x	x	x		
	USSCS		x	x	x	x		
	SPC		x	x	x	x		
	SHD		x	x	x	x		
	NDGF		x	x	x	x		
	UES		x	x	x	x		
	CC		x	x	x	x		
	WDB		x	x	x	x		
	SCD		x	x		x		
	WVA		x	x		x		
	GNDA		x	x		x		
Non-Government								
NDWF	USFWS		x	x		x		
	USSCS		x	x		x		
	NDGF		x	x		x		x
	SIERR		x	x		x		x

Kinds of Relationships

Respondent's Organization	Organization	Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activities by Law	Similar Activities by Practice
	NDWF	x	x	x		x		x
	AUDB		x	x		x		x
	NRA-US		x	x		x		x
SIERR	USFWS		x	x		x		
	USSCS		x	x		x		
	SWC		x	x		x		
	SHD		x	x		x		
	NDGF		x	x		x		
	SPOR		x	x		x		
	NDWF			x	x	x		x
	AUDB			x		x		x
ACE	ACE		x	x		x		
	BR		x	x		x		
	USGS		x	x		x		
	USFWS		x	x		x		x
	SWC		x	x		x		
	NDGF		x	x		x		x
	SIERR		x	x		x		x
	NDWF		x	x		x		x
	CSND		x	x		x		x
	NDFU		x	x		x		x
	NDFB		x	x		x		x
LARC	SWC			x		x		
	SHD		x	x		x		
	LARC		x	x		x		
MDFC	ACE		x	x		x		
	SWC		x	x		x		
	SCSSC		x	x		x		
	MDNR		x	x		x		
	USRC		x	x		x		
	NLRBPC		x	x		x		
	LRRMIB		x	x		x		x
	CC		x	x		x		
	WDB		x	x		x		
	LWD		x	x		x		
LSCAC	ACE	x	x	x	x	x		
	LARC	x	x	x	x	x	x	x
	LSCAC	x	x	x	x	x		
SWA	USFS		x	x		x		
	SPOR		x	x		x		
	SIERR		x	x		x		

Kinds of Relationships

Respondent's Organization	Organization	Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activity by Law	Similar Activity by Practice
	AUDB			x		x		
SVGA	USFS		x	x		x		x
	SWC		x	x		x		
	WDB		x	x				
	AGRI		x	x				
SECRWV	SWC		x					
	CC		x					
	WDB		x					
BCWF	WDB		x	x				
	EWC		x	x				
Regional								
SRRRC	ACE		x	x	x	x		
	USGS		x	x	x	x		
	USSCS		x	x	x	x		
	EPA		x	x	x	x		
	SWC		x	x	x	x		
	MDNR		x	x	x	x		
	RPC		x	x	x	x		
	WDB			x	x	x		
	SVA			x		x		x
	LSCAC		x	x		x		
	MAWMC		x	x		x		
LARC	ACE	x	x	x	x	x	x	x
	USSCS	x	x	x	x	x	x	x
	USFS	x	x	x	x	x	x	x
	SWC		x	x	x	x	x	x
	SHD	x	x	x	x	x	x	x
	SPD	x	x	x	x	x		x
	WDB			x	x	x		
	CG		x	x	x	x	x	x
	LSCAC		x	x	x	x	x	x
	SVGA			x		x		
SCRC	SHD	x	x	x	x	x		
	SPD	x	x	x	x	x	x	x
	CC	x	x	x	x	x	x	x
	CSCS		x	x	x	x		
	CG	x	x	x	x	x		
RRRC	ACE		x	x	x	x		
	SWC		x	x	x	x		
	WDB		x	x	x	x		

Kinds of Relationships

Respondent's Organization	Organization	Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activity by Law	Similar Activity by Practice
USFSL	ASCSSC		x	x				
	ACE		x	x	x	x		
	USFWS		x	x	x	x		
	USSCS		x	x				
	USFS	x	x	x	x	x	x	x
	FHA		x	x				
	SWC		x	x			x	x
	NDGF		x	x			x	x
	SFS		x	x			x	x
	PSC		x	x				
	LARC		x	x	x	x		
City								
FMCG	SWC		x	x	x	x		
	NDNR		x	x	x	x		
	LAPC		x	x	x	x	x	x
	CG	x	x	x	x	x		
FPC	ACE		x	x	x	x		
	LARC		x	x	x	x	x	x
	LCPC		x	x	x	x	x	x
	FMCG		x	x	x	x	x	x
WFPC	ACE		x	x	x	x		
	EPA		x	x	x	x		
	FHA	x	x	x	x	x		
	HUD	x	x	x	x	x		
	SORAB		x	x	x	x		
	SHD	x	x	x	x	x		
	CC		x	x	x	x	x	x
	WDB		x	x	x	x		
	FMCG		x	x	x	x	x	x
	CG			x			x	x
	TG			x				
VCPC	SPD			x	x	x	x	x
	SCRC			x	x	x		
	LCPC		x	x	x	x	x	x
	CG	x	x	x	x	x		
	BIDD			x	x	x		
LCG	LAPC		x	x	x	x		
	WDB		x	x	x	x		
KCG	ACE			x	x	x		
	SWC			x	x	x		
	SHD			x	x	x		
	WDB		x	x	x	x		

Kinds of Relationships

Respondent's Organization	Organization	Reporting Obligation	Formal Communication	Informal Communication	Geographic Overlap by Law	Geographic Overlap by Practice	Similar Activity by Law	Similar Activity by Practice
HCG	LARC		x	x	x	x		
	WDB		x	x	x	x		
County and Township								
CCSCS	ASCSSC		x	x	x	x		
	USFWS		x	x	x	x		
	NDGF		x	x	x	x		
	WDB		x	x	x	x		
	SCD		x	x	x	x		
CCHD	SHD			x	x	x	x	x
	UES			x	x	x		
	CC	x	x	x	x	x		
	LCPC			x	x	x		
	FMMCG		x	x	x	x		
CCTOA	WDB			x	x	x		
	STOA			x	x	x	x	x
	LSCAC		x	x	x	x		
RICTOA	USSCS		x	x	x	x		
	SWC		x	x	x	x		
	SPD		x	x	x	x	x	x
	LARC		x	x	x	x	x	x
	CC		x	x	x	x	x	x
	TG	x	x	x	x	x	x	x
	STOA		x	x	x	x	x	x
RACTOA	USFS	x	x	x	x	x		
	NDGF	x	x	x	x	x		
	WDB			x		x		
	STOA	x	x	x	x	x	x	x
	LSCAC		x	x	x	x		
BCTOA	WDB			x		x		

Source: From personal interviews completed September, 1977.

*BR has additional relationships with organizations not reported here because they were received too late for enclosure.

ORGANIZATIONS AND ACRONYMS NOT INDICATED ELSEWHERE

Agribusiness (AGRI)
Association of Counties (AC)
Bureau of Land Management (BLM)
Bureau of Mines (BM)
Bureau of Outdoor Recreation (BOR)
Business and Industrial Development Department (BIDD)
City Governments (CG)
Committee to Save North Dakota (CSND)
County Commissioners (CC)
County Health Departments (CHD)
County Sheriff (CS)
County Soil Conservation Services (CSCS)
Devils Lake Advisory Board (DLAB)
Ducks Unlimited (DU)
Environmental Protection Agency (EPA)
Erie Wildlife Club (EWC)
Farmers-Ranchers (FR)
Federal Housing Authority (FHA)
Flood Insurance Agency (FIA)
Housing and Urban Development (HUD)
Irrigation Districts (ID)
Legislative Council (LC)
Local and County Park Boards (LCPB)
Local and County Planning Commissions (LCPC)
Local Watershed Districts (LWD)
Lower Red River Water Management Board (LRRWMB)
Minnesota Department of Natural Resources (MDNR)
Moorhead Area Water Management Committee (MAWMC)
National Park Service (NPS)
National Rifle Association-United Sportsmen (NRA_US)
Natural Resources Council (NRC)
Northern Environmental Council (NEC)
Private Contractors and Developers (PCD)
Public Health Service (PHS)
Public Service Commission (PSC)
Red Lake River Basin Planning Commission (RLRBPC)
Regional Environmental Assessment Program (REAP)
Regional Planning Councils (RPC)
Rural Water Districts (RWD)
Soil Conservation Districts (SCD)
State Forest Service (SFS)
State Geological Survey (SGS)
State Highway Department (SHID)
State Outdoor Recreation Advisory Board (SORAB)
State Planning Division (SPD)
State Tax Department (STD)
State Township Officers Association (STOA)
Township Governments (TG)
United States Geological Survey (USGS)
United States National Guard (USNG)
Universities and Extension Services (UES)
Water Drain Boards (WDB)
Water Resource Council (WRC)
Water Users Association (WUA)

APPENDIX B

QUESTIONNAIRES

No_____

STUDY OF WATER PROBLEMS AND RELATED LAND USE IN THE LOWER SHEYENNE RIVER BASIN, NORTH DAKOTA

Confidential Questionnaire for
Analysis of Organizations

A. General Information

1. Organization:_____

_____

Address:_____

_____

_____Phone:_____

2. Responding Official: Name:_____

Position:_____

Elected_____Appointed_____

Address:_____

Phone:_____(if organizational address & phone is not available)

3. What is the general purpose of your organization?_____

_____

_____

4. How important is your organization to the following clientele groups? Please (Card 1) rank on the basis of 5, very important, to 1, not important.

a) General public	1	2	3	4	5
b) Agriculturalist	1	2	3	4	5
c) Small Businessman	1	2	3	4	5
d) Large business or industry	1	2	3	4	5
e) Recreationalist	1	2	3	4	5
f) Other:_____	1	2	3	4	5

No._____

B. Objectives and Activities of the Organization

1. What are the objectives of your organization pertaining to water resource management and related land use?

Obj. No. 1:_____

_____

_____

Obj. No. 2:_____

_____

_____

Obj. No. 3:_____

_____

_____

Obj. No. 4:_____

_____

_____

Obj. No. 5:_____

_____

_____

Obj. No. 6:_____

_____

_____

Obj. No. 7:_____

_____

_____

No._____

Objective No._____:_____

What has your organization done to achieve this objective during the past five years?

Activity No._____:_____

_____

a) what percent of budget is allocated to this activity?_____%

b) what percent of time is allocated to this activity?_____%

c) what is the source of funds to support this activity?_____%

Activity No._____:_____

_____

a) what percent of budget is allocated to this activity?_____%

b) what percent of time is allocated to this activity?_____%

c) what is the source of funds to support this activity?_____%

Activity No._____:_____

_____

a) what percent of budget is allocated to this activity?_____%

b) what percent of time is allocated to this activity?_____%

c) what is the source of funds to support this activity?_____%

Activity No._____:_____

_____

a) what percent of budget is allocated to this activity?_____%

b) what percent of time is allocated to this activity?_____%

c) what is the source of funds to support this activity?_____%

(Activities may include funding obligations, regulations, enforcement, implementation, maintenance, education, research, lobbying, etc.)

(Repeat if necessary)

No._____

A. Organization Coordination

1. What organizations do you have coordination and communication with relative to water resources management and related land use?

Org. No. 1:_____

_____

Org. No. 2:_____

_____

Org. No. 3:_____

_____

Org. No. 4:_____

_____

Org. No. 5:_____

_____

Org. No. 6:_____

_____

Org. No. 7:_____

_____

No._____

2. What form of coordination and/or communication concerning water resources management and related land use does your organization have with organization No._____:

(Card 2)

	No. yes	no	No. yes	no	No. yes	no	No. yes	no	No. yes	no
a. reporting obligation										
b. formal communication										
c. informal communication										
d. geographic area overlap										
1) by law										
2) in practice										
e. similar activities										
1) by law										
2) in practice										

Organizations

	No. yes	no	No. yes	no	No. yes	no	No. yes	no	No. yes	no
a. reporting obligation										
b. formal communication										
c. informal communication										
d. geographic area overlap										
1) by law										
2) in practice										
e. similar activities										
1) by law										
2) in practice										

(Repeat if necessary)

No. _____

I. Perceptions of Water Related Problems

1. From the perspective of your organization, what are the major problems related to water resources management and related land use in the Lower Cheyenne River Basin?

Problem No. 1: _____

_____

_____

Problem No. 2: _____

_____

Problem No. 3: _____

_____

_____

Problem No. 4: _____

_____

_____

Problem No. 5: _____

_____

_____

Problem No. 6: _____

_____

_____

Problem No. 7: _____

_____

_____

No. ________

1. Problem No. ____ : ____

2. From the perspective of your organization, what are the major causes of this problem?

Cause No. ____ : ____

____

____

____

Cause No. ____ : ____

____

____

____

Cause No. ____ : ____

____

____

____

3. From the perspective of your organization, what are potential solutions to this problem?

Solution No. ____ : ____

____

____

Solution No. ____ : ____

____

____

Solution No. ____ : ____

____

____

(Repeat if Necessary)

No._____

Problem No. ____: _____

Problem No. ____: _____

4. Would the effect of Solution No. ____ be a gain, loss, or no effect on your organization's:

		Comments
a) Activities	+ - 0 ?	: _____
b) Geographic area	+ - 0 ?	: _____
c) Value of property	+ - 0 ?	: _____
d) Revenues	+ - 0 ?	: _____
e) Expenditures	+ - 0 ?	: _____

5. What other organizations will have increased functions or activities if the solution No. ____ is implemented?

Org. No. 1: _____

Org. No. 2: _____

Org. No. 3: _____

Org. No. 4: _____

Org. No. 5: _____

Org. No. 6: _____

Org. No. 7: _____

No. _____

[illegible] No. _____: _____

[illegible] No. _____: _____

[illegible] other organizations will have decreased functions or activities if the solution No. _____ is implemented?

[illegible] No. 1: _____

_____

[illegible] No. 2: _____

_____

[illegible] No. 3: _____

_____

[illegible] No. 4: _____

_____

[illegible] No. 5: _____

_____

[illegible] No. 6: _____

_____

[illegible] No. 7: _____

_____

[illegible] No. 8: _____

_____

[illegible] No. 9: _____

_____

[illegible] No. 10: _____

_____

No._____

V. Participation in Corps of Engineers' Flood Control Planning Study

1. Will this organization participate in the Flood Control Planning Study of the Lower Sheyenne River Basin by the Corps of Engineers

a) directly? Yes_____ No_____ Unknown _____

If yes, how?_____

_____

_____

b) Indirectly via other organizations or representatives? Yes_____ No_____ Unknown_____

If yes, what organizations and how?_____

_____

_____

Organization	Form of Participation
1._____	_____
2._____	_____
3._____	_____
4._____	_____

c) If organization will not participate, why?

_____

_____

_____

_____

_____

No._____

F. Characteristics of Respondent

1. Length of time in current position:_____years

2. Length of time in current organization: _____years

3. If this position is part time, what is your regular occupation?_____

_____

4. In addition to this organization, what other governmental boards, committees, councils, and agencies are you a member of?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

PROBLEM

No. 1 _____

CAUSES

1._____ 2._____ 3._____

SOLUTIONS

1._____ 2._____ 3._____

_____ _____ _____

EFFECT

Activities	+ - 0 ?	+ - 0 ?	+ - 0 ?
G. Area	+ - 0 ?	+ - 0 ?	+ - 0 ?
V. of Prop.	+ - 0 ?	+ - 0 ?	+ - 0 ?
Revenues	+ - 0 ?	+ - 0 ?	+ - 0 ?
Expenditures	+ - 0 ?	+ - 0 ?	+ - 0 ?

Other Org.	1._____	1._____	1._____
W. Positive	2._____	2._____	2._____
	3._____	3._____	3._____
	4._____	4._____	4._____
	5._____	5._____	5._____
Other Org.	1._____	1._____	1._____
W. Negative	2._____	2._____	2._____
	3._____	3._____	3._____
	4._____	4._____	4._____
	5._____	5._____	5._____

Interview Number_____

QUESTIONNAIRE: AN INSTITUTIONAL ANALYSIS OF THE LOWER SHEYENNE RIVER BASIN
(ORGANIZATIONAL PROFILE)

Code

Date of Contact:_____ Recall Time_____

0 1 2 How contacted? 0) phone 1) personal 2) mail

Interviewer:_____

1. Respondent's name:_____

2. Official title of organization and unit of organization that the respondent represents?

_____

3. Official address of organization:

_____

4. Phone number of organization:_____

5. What kind of organization is it?

___Independent Government Unit	___Professional Organization
___Agency of State Government	___Environmental Group
___Agency of Federal Government	___Recreational Group
___Civic or Service Organization	___ _____

0 1 2 3 4 6. What is the jurisdictional level of the organization? 0) state 1) regional 2) county 3) township 4) municipal

7. What geographical area do you serve (if not apparent from above)?

_____

_____ 8. What is your official position in the organization?

_____

_____ 9. How long have you held this position?_____

10. Respondent's phone number if organization is not available_____

0 1 11. Does your organization have any concern or responsibility about water resource management and related land use? 0) no 1) yes

a. if no, thank respondent and terminate interview

b. if yes, is it primarily

Government		Non-Government
___Financial	___Operation	___Research
___Regulation	___Planning	___Public Education
___Implementation	___Legislative	___Lobbying
		___Resource Use or Control

c. also if yes, relative to (indicate any that apply):

0 1 quality 0) no 1) yes
0 1 use 0) no 1) yes
0 1 supply 0) no 1) yes
0 1 flood control 0) no 1) yes
0 1 wildlife resources 0) no 1) yes
0 1 land use adjacent to 0) no 1) yes
0 1 other ______________________ 0) no 1) yes

d. specifically, what are these activities? ______________________

____

____

0 1 12. Does your organization have a charter? 0) no 1) yes
a. if yes, where may a copy of it be obtained?

____

0 1 13. Are there other publications available that describe the goals of your organization? 0) no 1) yes
a. if yes, where? ______________________

0 14. What are the primary goals the organization?
1) ______________________
2) ______________________
3) ______________________
4) ______________________

15. How many staff members in your organization are fulltime? (or unit of the organization)? _____ number fulltime
a. number paid _____ ?

16. How many staff members of your organization are voluntary? _______ number voluntary

17. In addition to staff, how many members of your organization are there? (ask only if voluntary organization)

18. Who are the clientele for your organization (e.g., all persons in the county interested persons in the area, etc.)?

____

19. How many persons does your organization serve? ______________________

1 20. Are there specific regulations about water resources management and related land use that your organization deals with in its activities? 0) no 1) yes

a. if yes, where are they available?

____

b. if [illegible]

____

b. (continued)

_____

_____

0 1 21. Is your organization temporary or permanent? 0) temporary 1) permanent

a. if temporary, when does it terminate?

_____

0 1 22. Is your organization a sub-unit of a larger organization? 0) no 1) yes

a. if yes, what organization(s) are these?

1) _____
2) _____
3) _____
4) _____

0 1 23. Does your organization have jurisdiction over other units? o) no 1) yes

a. if yes, what are these?

1) _____
2) _____
3) _____
4) _____

0 1 24. Does your organization have contact with other organizations as a part of its activity? 0) no 1) yes

a. if yes, what are these?

1) _____
2) _____
3) _____
4) _____

0 1 25. Is last year's budget available? 0) no 1) yes

a. if yes, from where? _____

26. What was the major source of funds for your last fiscal year's budget?

	Major Source	Other Sources
federal appropriations		
federal grants		
state appropriations		
local taxes		
private gifts and memberships		
private grants		
other _____		

27. How long have you been a member of this organization? _____

28. What is your occupation (if different from position in organization)?

_____

29. Review list of materials to be sent by respondent and give respondent mailing address.

0 1 organizational charter 0) no 1) yes
0 1 other documents on structure and purpose of organization 0) no 1) yes
0 1 laws and regulations about water resources management 0) no 1) yes
0 1 organizational budget 0) no 1) yes

30. If follow-up interview is indicated for organizational analysis, set up appointment time:

_____

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX C

A METHODOLOGICAL DISCUSSION

APPENDIX C

A METHODOLOGICAL DISCUSSION

Social scientific research traditionally follows general steps. These are: 1) selection of a research problem; 2) formulation of hypotheses 3) determination of research methodology and operationalization of the hypotheses; 4) sampling; 5) data analysis; and 6) writing the report (Thomlinson, 40-42). Fairweather delineated similar steps in research oriented toward decision-making and policy formulation. These steps, somewhat modified, are: 1) choosing a problem; 2) obtaining administrative commitments; 3) forming a research team; 4) functionally defining a social system 5) defining the population; 6) obtaining the sample; 7) developing concepts and procedures of measurement; 8) selecting appropriate methods for studying social relationships; 9) data collection; 10) data analysis; and 11) writing the report. This research generally follows the steps outlined by Fairweather.

Research problem

The research problem, as defined in the "Scope of Work" and stated in "the purpose and authority for the study" section of this report is to "conduct an institutional analysis . . . for a study of water problems and related land use in the lower Sheyenne River Basin of North Dakota."

Administrative Commitment

Administrative commitment followed when Concordia College signed a research contract with the Army Corps of Engineers, St. Paul District on 6-20-77. Other institutions and agencies with interests in this area of research were contacted and informed about the study. Two of these were the Lake Agassiz Regional Council and the North Dakota State Water Commission.

Research Team

The research team was selected because of their prior experience as members of multi-disciplinary research teams and their prior research of the lower Sheyenne River basin (See publications in the bibliography by Falk, Leitch, Nelson and Center for Environmental Studies).

The Social System

Loomis describes a social system as including systems of persons interacting through "the definition and mediation of a pattern of structured and shared symbols and expectations" (Loomis 1960, 4). These patterns of interaction may be formal and legally defined or informal and consensually understood (Sanders 1958, 109-118). This study used these general assumptions of social systems and focused primarily on formal groups but not in the strictest sense. In this study a group is defined as having:

> 1) a shared goal, interest or perspective; 2) mutual awareness among members, and 3) active association in communication or cooperative behavior, whether or not actually meeting. Accordingly, the inventory will include informal voluntary associations and interest groups, as well as formalized organizations (Scope of Work, 4).

Relevant to this kind of study, Tomeh (1973, 89) suggests that the voluntary association "may be interpreted as an organization invention that aids in the continuing transition process of urbanization by combining blends of primary and secondary social experiences." It is in this sense that voluntary associations are examined in this study.

The social system analyzed here consisted of those groups with interests in flood control, water supply, water quality, land use, flood-plain regulation, and fish and wildlife in the lower Sheyenne River basin.

Population

The population or subjects for this study were those

organizations other than state or federal agencies, with interests in flood control, water supply, water quality, land use, floodplain regulations and fish and wildlife in the lower Sheyenne River basin. The lower Sheyenne River basin was defined as that portion of the drainage basin area between Bald Hill Dam and the Red River of the North. A rather complete list of these organizations was formed and discussed by the research team and judgments made about their appropriateness for inclusion in the study.

Sample

The "Scope of Work" stated that representatives of approximately thirty-five of these organizations be interviewed though additional organizations might be contacted for their organizational profiles. In this step, preliminary determination was made on which organizations would be profiled and which interviewed in depth. The final determination of this division was made at the time of interviewing and in response to specific questions in the research instrument. Fifty-four agencies were profiled and thirty-nine (including some of the 54) were interviewed in depth.

Developing Instruments and Survey Techniques

General methodology for the research project was established before developing the instruments. However, in developing the research instruments, additional questions were raised about survey techniques. Two instruments were formulated, the first an organizational profile and the second a confidential questionnaire for analysis of organization (See appendix B). Various publications were used in formulating these instruments (See Army Corps studies, Center for Environmental Studies, Research Team, Waelti, Rickson, et. al., Ludwig, and Falk.). Preliminary copies of the two instruments were sent to the corps 6-14-77 for suggestions and revisions. Final formulation of the instruments was made at a meeting with Army Corps of Engineers representatives 7-7-77.

The organizational profile focused primarily on the objectives and responsibilities of the selected organizations. The second instrument assessed organizational objectives and functions (as viewed by one or more of the organization's primary representatives), assessments of perceptions of other organizations' objectives and functions that are involved with the Lower Sheyenne River basin, and assessments of interrelationships among these organizations. The two instruments were integrated so that information derived from one was supplemental of the other.

Data Collection

Face-to-face and phone interviewing was done in accordance with the research plan. Secondary sources were used where available for confirmation and supplementation of interview data. Laws, regulations and ordinances relative to the research interests and the lower Sheyenne River basin were collected conjointly with the interviewing. Legal document summaries pertinent to the research are included in Appendix D. Interviewing was completed 9-9-77.

Data Analysis

Fixed response and open ended question responses were coded and translated into appropriate form for data analysis. Computer analysis was used for tabulation and presentation of data. Findings and conclusions of the analysis constitute the major portion of the narrative portion of this report.

Reporting

This report constitutes the reporting document as prescribed in the "Scope of Work."

APPENDIX D

DESCRIPTION OF PUBLICATIONS CONTAINING LAWS AND THEIR REGULATIONS ABOUT WATER AND LAND USE IN THE LOWER SHEYENNE RIVER BASIN

APPENDIX D

DESCRIPTION OF PUBLICATIONS CONTAINING LAWS AND THEIR REGULATIONS ABOUT WATER AND LAND USE IN THE LOWER SHEYENNE RIVER BASIN

Cass County Board of Health, Health Department Regulations, Fargo, North Dakota, 1975, 21 pages.

Includes regulations on nine subjects as follows:
- Rodent Control adopted February 15, 1972
- Liquor Establishments adopted February 15, 1972
- Water Haulers adopted February 15, 1972 (restricts selling of water)
- Trailer Courts adopted February 15, 1972 (specifies kind of water source, sewage and garbage disposal systems).
- Bakeries (February 15, 1972).
- Sewage Disposal adopted February 15, 1972 (requirement of minimum standards and subject to inspection).
- Garbage Disposal adopted February 15, 1972 (requirements for minimum standards of storage, collection, transportation and final disposal)
- Private Haulers Permit adopted May 2, 1973
- Fire Land regulation adopted January 17, 1975

North Dakota State Department of Health, North Dakota Guidelines for the Control of Pollution for Certain Livestock Enterprises, Bismarck, North Dakota (no date), 9 pages.

These guidelines are to assist in solving waste handling problems connected with livestock operations and to present information on possible methods that can be utilized by the operator. The State Department of Health or the State Water Pollution Control Board does not require any particular method of treatment or control of wastes for livestock operations. The problem of control or treatment of wastes will vary with each installation due to differences in location, terrain, soil conditions, kinds and numbers of animals, operational practices and other factors. Because of these differences, any method which provides proper control of wastes and protections of the state's waters will be considered by the Department.

The publication covers sections 61-28-01 through 61-28-05.
- 61-28-01 Responsibility
- -02 Definitions
- -03 Operations requiring approval
- -04 Approval procedures and requiring approval
- -05 Departmental inspection

North Dakota State Department of Health, Regulations for Public Water Supply System, Bismarck, North Dakota (Pre-final regulations), August, 1977, 18 pages.

The publication covers Regulation R 61-28.1 for public water supply systems. The sections are as follows:
- .100 Responsibility
- .200 Definitions
- .300 Coverage
- .400 Designated responsible individuals

.500 Maximum contaminant levels
.600 Inorganic chemical sampling and monitoring requirements
.700 Organic chemical sampling and monitoring requirements
.800 Turbidity sampling and analytical requirements
.900 Radioactivity sampling and monitoring requirements
.1000 Microbiological contaminant sampling and analytical requirements
.1100 Monitoring of consecutive water systems
.1200 Reporting, public notification, and record keeping
.1300 Record maintenance
.1400 Variances and exemptions
.1500 Siting
.1600 Plans and specifications
.1700 Operation and maintenance

North Dakota State Department of Health, Rules and Regulations for the North Dakota Pollutant Discharge Elimination System, Bismarck, North Dakota (no date), 33 pages.

This publication covers regulations governing pollutant discharge R 61-28-100 through R 61-28-129. The sections are as follows:

R-28-100 Authority
101 Scope and purpose
102 Definitions
103 Application for an NPDES Permit
104 Receipt and use of federal data
105 Transmission of data to the regional administrator
106 Identity of signatories to NPDES forms
107 Formulation of tentative determinations and draft NPDES permit
108 Public notice
109 Fact sheets
110 Notice to Government agencies
111 Public access to information
112 Hearings and notice
113 Prohibited discharges
114 Application of effluent standards and limitations, water quality standards, and other requirements
115 Effluent limitations in issued NPDES permits
116 Schedules of compliance in issued NPDES permits
117 Other terms and conditions of issued NPDES permits
118 Transmission to Regional administrator of proposed NPDES permits
119 Transmission to Regional administrator of issued NPDES permits
120 Duration
121 Reissuance of NPDES permits
122 Monitoring
123 Recording of monitoring activities and results
124 Reporting of monitoring results
125 Receipt and follow-up of notifications and reports
126 Modification, suspension and revocation of NPDES permits
127 Control of disposal of pollutants into wells
128 Conflicts of interest
129 Appeal

North Dakota State Department of Health, Solid Waste Management Regulation, Bismarck, North Dakota, July 1, 1976, 16 pages.

The publication gives regulations 23-29-01 through 23-29-15 relative to solid waste management in North Dakota. The sections are as follows:

23-29-01 Finding of necessity
02 Declaration of purpose
03 Definitions
04 Powers and duties of the department
05 Municipal ordinances
06 Regional solid waste management
07 Permits
08 Inspections
09 Notice
10 Administrative procedure and judicial review
11 Injunction proceedings
12 Penalties
13 Plats
14 Exemption
15 Short title

North Dakota State Department of Health, Standards of Water Quality for State of North Dakota, Bismarck, North Dakota, April 28, 1977, 20 pages.

The stated purpose of the regulation R61-28-02 contained in this publication is to "maintain and improve the quality of waters in the State and to maintain and protect existing water uses." The sections are as follows:

02.100 Declaration of Policy
.200 Definition of terms used
.300 Variances
.400 General requirements
.500 General conditions
.600 Specific standards of quality for designated classes of waters of the state
.700 Miscellaneous provisions
.800 Stream classification (In this section the Sheyenne River is classified I A which is: "The quality of this class of waters shall be such that its uses shall be the same as those for Class I, except that additional treatment may be required over that noted in Class I to meet the drinking water requirements of the North Dakota State Department of Health." Class I is defined as "The quality of waters in this class shall be such as to permit the propagation and/or life of resident fish species and shall be suitable for boating, swimming, and other water recreation. The quality shall be such that after treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the treated water shall meet the bacteriological, physical, and chemical requirements of the State Health Department for municipal use. The quality of water shall be such as to permit its use for irrigation, stock watering, and wildlife use without injurous affects.")
.900 Lake classification

North Dakota State Water Commission, North Dakota Water Laws 1973, Bismarck, North Dakota, 1973, 326 pages.

The most comprehensive publication bringing together the water laws of the state of North Dakota is one compiled by the North Dakota State Water Commission. The sections are as follows:

COUNTY PARKS AND RECREATIONAL AREAS

11-28-01 Board of county park commissioners--Appointment by county commissioners--number.
02 Eligibility for appointment--Term--Vacancy--Compensation
03 County auditor, county treasurer, and state's attorney shall serve board.
04 Organization of board--Quorum, meetings
05 Powers and duties of the board of park commissioners
06 Tax levy by board of county commissioners
07 Auditing and payment of bills
08 Publication of rules, regulations, and proceedings
09 Violation of any rule or regulation a misdemeanor--Penalty--Injunction
10 Police, constables, sheriff to enforce chapter
11 Declaration of power--Saving clause
12 Joint county park district
13 Compensation--Vacancy--Meetings.
14 Secretary and treasurer.
15 Organization--Quorum.
16 Power and duties of board.
17 District budget--Tax levy--Election
18 Auditing and payment of bills
19 Publication of rules, regulations, and proceedings
20 Violation of rules--Penalty
21 Police officer to enforce act
22 Declaration of power

COUNTY SPECIAL SERVICE DISTRICTS

11-28-01 Board of county park commissioners may establish service districts.
02 Plans and specifications required--Approval
03 Hearing--Notice
04 Protest against establishing service district--Hearing to determine sufficiency--When protest a bar to proceeding
05 Assessment of expenses
06 Assessment list to be prepared--Contents--Certificate attached to assessment list
07 Publication of assessment list and notice of hearing of objections to list
08 Alteration of assessments at hearing--Limitations
09 Confirmation of assessment list after hearing--Filing list
10 Publication of notice of confirmation of assessment list and meeting for action upon assessments
11 Aggrieved person may file notice of appeal
12 Board of county commissioners to hear and determine appeals and objections to assessments--Altering assessments--Limitations
13 Confirmation of assessment list by governing body--Certifying list--Filing
14 Use of collections of assessments
15 Board of county park commissioners may contract--Contents
16 Service assessment funds and the disbursements thereof

WATER WELL CONTRACTORS

43-35-01 Declaration of policy
02 Definitions
03 State board of water well contractors--Members' appointment--Qualification
04 Appointive members to qualify--Terms of office--Filling vacancy
05 Officers--Office
06 Secretary-treasurer bond
07 Compensation and reimbursement of expenses
08 Office, administrative, and technical personnel--Compensation
09 Deposit of fees--Use and appropriation of funds
10 Powers and duties of board
11 Certificate required
12 Examination--When held--Notice
13 Certificate--How obtained--Fee--Bond
14 Bond required
15 Certification of persons engaged in contracting at at effective date of chapter
16 Display of certification
17 Renewal of certificate
18 Firm engaged in water well work to employ certified water well contractor--Exception
19 Standards for well drilling--Reports required
20 Revocation or suspension of certificate--Grounds for--How reinstated
21 Certification to nonresidents--Reciprocity
22 Contracting for well construction without certification Penalty.

PROPERTY

GENERAL PROVISIONS

47-01-13 Ownership of land includes water--Repealed
14 Land below high watermark--Regulated by federal or state law
15 Banks and beds of streams--Boundary of ownership

SERVITUDES

47-05-01 Easements attached to other lands
02 Servitudes not attached to land

REAL ESTATE TITLE BY OCCUPANCY AND ACCESSION

47-06-05 Riparian accretions
06 Avulsion--Title--Reclamation by original owner --Limitations
07 Ancient stream bed taken by owners of new course as demnity
08 Islands and relicted lands in navigable streams belong to state
09 Islands and relicted land in nonnavigable streams
10 Island formed by dividing stream--Title

SPORTS AND AMUSEMENTS

OUTDOOR RECREATION AGENCY

53-07-01 Outdoor recreation agency--Composition--Functions.
02 Expenditures through existing departments or agencies
03 Adoption of rules and regulations

GENERAL PROVISIONS, STATE OFFICERS

54-06-09 Mileage and travel expense of state officers and employees
09.1 Certification of unlawful expense and traveling account--Penalty--Action for violation.

GENERAL PROVISIONS

61-01-01 Waters of the state--Public waters
01.1 Priority of water rights--Definitions
02 Right to use water--Basis--Waters appropriated for irrigation purposes--Priority in time.

WATERS

61-01-03 Claims to the use of water initiated prior to and after March 1, 1905.
04 Eminent domain--Who may exercise
05 Reclaiming waters turned into natural or artificial watercourse.
06 Watercourse--Definition
07 Obstruction of watercourses--Penalty
08 Obstructing navigation--Penalty.
09 Destruction of dams--Penalty
10 Interference with piers or booms--REPEALED
11 Removing or injuring piles--Penalty--REPEALED
12 Fouling waters with gas tar or other refuse--REPEALED
13 Fouling public waters with dead animals or other refuse--Penalty--REPEALED
14 Fouling public water--What included--REPEALED
15 Riparian owners of land lying adjacent to non-navigable streams--REPEALED
16 Erection of guards when cutting ice--Penalty for failure to do so
17 Lawful to boom logs in navigable rivers
18 State or municipalities may join water users' associations--Fee for recording articles by register of deeds--REPEALED
19 Right of way granted
20 When special assessments shall become a lien
21 Sale of property where only special assessment is delinquent.
22 Permit to drain waters from certain ponds, sloughs, or lakes into a watercourse or natural drainway--Penalty
23 Removal of obstructions in channel of nonnavigable streams
24 "Mouse" official name of river
25 Penalty
26 Declaration of state water resources policy.

WATER CONSERVATION COMMISSION

61-02-01 Water conservation, flood control, and abatement of stream pollution declared a public purpose.
02 Definitions
03 Apportioning or allocating water rights by commission
04 State water conservation commission--Members--Terms --Qualifications

05 Chairman of commission.
06 Principal and branch offices of commission
07 Quorum--What constitutes
08 Meetings of commission
09 Commission a public corporation--Agency of state
10 Commission to have seal--Judicial notice
11 Commission may adopt rules and regulations--Record kept by commission--Inspection
12 Compensation and expenses of appointive members of commission
13 Employment of assistants, fixing compensation--Claims for compensation and expenses
14 Powers and duties of the commission
15 Provisions of chapter not to limit or deprive health departments of authority
16 Preference is given to individual farmer or irrigation district when planning or constructing irrigation projects
17 Records, accounts, and statements of works and projects undertaken--Filed with secretary of state
18 Application for irrigation project--Fees to accompany --Surveys made
19 Works of commission may include preparation of land for irrigation when project undertaken by commission
20 Approval of commission necessary before constructing certain size dams--Inspection during construction
21 Sewage and waste disposal or discharge--Water supply plant--Approval of commission required
22 Acquisition of necessary property and power of condemnation
23 Actions to acquire property rights
24 Co-operation and co-ordination with all existing agencies
24.1 Co-operation and participation of political subdivisions
25 Duties of state agencies acting through interstate compacts or agreements
26 Duties of state agencies concerned with intrastate use or disposition of waters
27 Proposals with respect to use or disposition of waters to be presented to commission
28 Plans, investigations, and surveys concerning use of waters--Special powers of commission
29 Commission to have full control over unappropriated public waters of state
30 Commission acquiring water rights and administering provisions of chapter--Declaration of intention
31 Priority of water right dates from when
32 Modification of plans by commission regarding project to appropriate waters--Filing declaration of intention
33 Commission to file declaration of completion of appropriation with state engineer
34 Declaration of intention to appropriate or release waters or completion of appropriation as evidence
35 When right of commission to waters attaches--Continuation of authority and jurisdiction
36 Natural streams employed as a means of diversion of water--Adopting methods to determine natural flow
37 Headgates and measuring devices maintained by appropriators of natural streams--Commission adopting rules preventing diversion of water.

38 Holder of water right on natural stream may turn control over to commission
39 Commission may adjust plans and operation of project to obtain financial aid from United States
40 Authority of commission to extend and be applied to natural waters of state
41 Commission may enter to make surveys for the diversion of waters
42 Commission to take into consideration decrees of court adjudicating waters of natural stream
43 Commission may hold hearings relating to rights of claimants--Notice--Findings made
44 Controlling natural flow of stream deemed police power --Water commissioners not to deprive commission
45 Commission may divert at any place on stream after impounding or acquiring the right of appropriation
46 Commission may issue bonds for acquiring lands for irrigation--Limitation--Principal and interest--How paid
47 When bonds to mature--Callable before maturity
48 Commission to determine interest rate, form, denomination, and execution of bonds
49 Officers whose names are on bonds ceasing to be officers before delivery of bonds--Validity of bonds.
50 Bonds issued are negotiable
51 How bonds may be secured
52 Commission may provide for registration of bonds
53 Issuance and sale of bonds--Proceeds from sale--Use
54 Resolution providing for issuance of bonds--Separate series of bonds
55 Issuance of temporary bonds in lieu of definitive bonds
56 Guarantying and insuring the payment of interest and principal of revenue bonds--Method
57 Moneys appropriated to pay interest and principal of bonds available as a revolving fund
58 Lien upon bond proceeds
59 Series of bonds may be secured by trust indenture
60 Trust indentures--Where filed--Filing constitutes constructive notice
61 Resolution or indenture may contain provisions protecting bondholders--Expenses incurred in carrying out indenture
62 Powers of commission in issurance of bonds
63 Mortgage of commission--Contents--Purchaser at foreclosure sale--Rights
64 Funds created by commission--Depository
64.1 Contract fund--Purpose--Reimbursements to be deposited with the state treasurer
65 Commission to have complete system of accounting--Contents
66 Construction fund--Contents--Disbursements--Surplus remaining
67 Revenue bond payment fund--Contents
68 State treasurer to pay interest on bonds--Redemption of bonds
69 Property of commission exempt from taxation
70 Expenses paid from administrative fund--REPEALED
71 Commission may accept and receive appropriations and contributions

STATE ENGINEER

APPROPRIATION OF WATER

10 Certificate of construction issued when works found in satisfactory condition--Contents--REPEALED
11 Inspection of works
12 Use of unsafe works a misdemeanor--Duty of state's attorney
13 Application of water to beneficial use--Inspection REPEALED
14 Extending time for application to beneficial use
15 Assignment or transfer of conditional or perfected water permit--Regulations governing
16 Referee or referees appointed in water suits--Duties
17 Surplus water to be delivered to persons entitled to beneficial use--Charges--Compelling delivery
18 Appropriation of water from minor stream of agricultural use--REPEALED
19 Filing of location certificate--Contents--REPEALED
20 Approval of state engineer--Rights of claimant--Procedure--REPEALED
21 Amount of water allowed--REPEALED
22 Prescriptive water right
23 Forfeiture of water rights--Inspection of works
24 Forfeiture of water rights--Notice--Contents
25 Forfeiture of water rights--Hearing--Appeal
26 Register, of deeds to record order canceling water right.

ORGANIZATION OF IRRIGATION DISTRICTS

61-05-01 Definitions
02 Proposals for irrigation district--Electors required
03 Votes of electors--Number permissible
04 Fiduciary must file proof of authority--Appointment of agent
05 Co-owners of land in irrigation district--Who may vote
06 Private or public corporation may designate agent to vote
07 Petition for a proposed irrigation district--Where filed--Signed by whom--Contents
08 Petition accompanied by map--Contents--Scale
09 Petition accompanied by bond--Approval of bond--Certified copy of petition filed
10 Hearing on petition--Notice--Report prepared by state engineer on feasibility--Copy of report filed --Submitted to electors
11 Amendment of plan of irrigation--Adjournment of hearing by state engineer
12 State engineer may make order denying petition--Filing
13 State engineer to make order establishing irrigation district--Calling election--Dividing district--Contents of order
14 Notice of election by state engineer--Contents--Publication
15 Form of notice of election
16 State engineer to appoint clerk and two judges of election--Filling vacancies on board
17 Conduct of election--Votes canvassed by board and state engineer--Retaining ballots
18 Election governing organization of district--Filing record of election--Certificates of election to directors.

GOVERNMENT OF IRRIGATION DISTRICTS

POWERS OF IRRIGATION DISTRICTS

06 Contracts entered into by district--Contracts for materials--Reservations in contracts
07 Board to formulate general plan of operation--Contents
08 Surveys, examinations, and plans made to determine cost of construction in district--State engineer to prepare report
09 Advertising for bids--Letting contract--Bond required
10 Expense of purchasing and acquiring property and constructing irrigation works--Insufficiency of bonds
11 District entering into agreements with others for payment of cost of establishing or constructing works
12 Expenses--How paid
13 Agreement by board to conform to laws of various departments or agencies to secure financial aid
14 Irrigation districts may accept acts of Congress--Contracting with United States--Provisions of section not a limitation
15 District may obtain financial aid from United States
16 Irrigation district may provide for proper drainage of lands--Payment
17 Apportionment of water when supply insufficient
18 Duty of board to keep ditches flowing continuously
19 Petition for specific orders or changes in canals --Methods
20 Provisions of title not to take away vested rights
21 Incurring liability in excess of provisions of chapter prohibited--Exception
22 Commencement of special proceedings to confirm contracts, special assessment, or other action
23 Petition by board for court to examine and approve contracts or assessments--Contents of petition.
24 Hearing of petition--Notice of filing and hearing
25 Answer to petition--Defense by person interested
26 Powers of court upon trial--Amendment of petition
27 Conclusion of hearing--Findings--Decree--Costs of hearing--Filing copies of findings
28 Procuring water supply from district outside of state --Validity and legality
29 Board may enter into a contract for supply of water --Payment--Source
30 Contract for payment for supply of water--Assessments may be made against lands
31 Contract for supply of water extending over one year approved at election--Regulations governing election
32 Liability for failure to deliver water
33 Appeal to district court--Time--Notice--Undertaking required--Docketing

FISCAL AFFAIRS OF IRRIGATION DISTRICTS

61-08-01 Resolution to institute initial proceedings for bonds--Contents--Adoption
02 Adopting initial resolutions by board--Date of election--Contents of resolution--Conduct of election
03 Notice of election--Contents--Posting and publication
04 Ballot for election--Contents--Spoiled or blank ballots not counted
05 Majority of ballots favoring issuance of bonds—Duty of board

06 Maturity of bonds issued--When installment of principal falls due--Amount
07 Bonds payable to whom--Interest coupons--Rate of interest--Numbering
08 Denominations of bonds--Payable in lawful money of United States
09 Execution of bonds and interest coupons--Validity of bonds not impaired by change in officers.
10 Registration of bond by secretary--Contents--Copy filed with county auditor--Secretary to endorse
11 Cancellation of bonds authorized but not paid --Destruction of bonds--Affidavit of destruction --Filing
12 Advertising required before district sells issue of bonds--Contents of notice--Who to receive notice
13 Opening bids for bond issues--Record of bids kept--Bids accompanied by check
14 Awarding sale of bond issue--Rejecting bids--Purchasing irrigation works already constructed
15 Officer of irrigation district accepting commission or compensation in regard to bonds--Misdemeanor
16 Registration of "bearer" bonds--Transfer must be recorded in register--Registration not to affect negotiability of coupons
17 When issuance of district improvement warrants permissible
18 Use of district improvement warrants--Assessments levied to raise funds to pay improvement warrants
19 Improvement warrants--Amount--When payable--Maturity
20 Interest on warrants--Signatures--Contents
21 Registration of warrants by secretary--Filing copy of record in county auditor's office
22 Bonds and district improvement warrants may be secured by trust indenture--Powers vested in trustee
23 Where money received from bond issue or improvement warrants placed--Lien on money
24 Board may appoint fiscal agent--Who may be
25 Bonds, improvement warrants, and contracts payable from assessments of real property and from water charges
26 County treasurer to be custodian of funds
27 District treasurer to remit moneys to county treasurer --Crediting proper fund
28 Payment of bonds and warrants due--Redemption of bonds and warrants--Notice of redemption--Contents--Bids --Opening
29 Claims paid by district treasurer--Insufficient funds --Verification of claims
30 Board may withdraw funds from district and deposit with county treasurer--Duty of treasurer
31 County treasurer to make report to board monthly
32 District treasurer to make monthly report to board--Verifying and filing
33 District treasurer to keep warrant register--Contents --How warrants payable
34 Refunding irrigation district bonds--Negotiating new bonds
35 Procedure used in issuing refunding bonds

36 Refunding bonds--When payable--Interest--Denominations --Interest coupons
37 Refunding bonds may be exchanged or sold

ASSESSMENTS IN IRRIGATION DISTRICTS

61-09-01 District assessor to examine tracts of land to fix annual assessments levied thereon
02 District assessor to make list or prepare map to show apportionment of assessments--Filing
03 Assessments spread in proportion to benefits received--Property subject to assessment for deficiency
04 Assessment of property not in name of owner not to invalidate assessment
05 Assessor to determine amounts payable to United States' agencies and other persons or districts.
06 When assessment roll completed--When board to equalize assessments
07 Meeting of board of equalization--Duties--Secretary to be present to note changes
08 Board to levy assessment against lands of district-Amount--How determined
09 Board may levy assessment for "general fund"--Contents
10 Secretary to enter sum assessed against each tract for each fund--Certifying to county auditor--Duty of auditor
11 Assessments and taxes collected by county treasurer--Manner
12 Refusal or failure of board to cause assessment to be made
13 Board may borrow additional funds if levy of annual assessment is insufficient for district--Limitations
14 Warrants in excess of ninety per cent of levy prohibited --Additional levy permissible--Transfer of balance in fund
15 Assessment made to be general tax--When due and delinquent--Tax sale lien to be preferred lien
16 Payment of assessments under protest--When refunding taxes or assessments
17 Abatement of assessments--Exception
18 Board may call special election to determine if special assessment shall be levied
19 Special election--Notice--Ballots
20 How rate of special assessment determined--Entering upon assessment roll--Payment of assessment money when collected.

CHANGING BOUNDARIES OF IRRIGATION DISTRICTS

61-10-01 Change of district boundaries--Effect.
02 Petition for inclusion of land in district--Contents of petition
03 Notice of petition to include land in district--Contents --Time required by notice--Cost--REPEALED
04 Hearing of petition on proposed change in coundaries--Assent of parties--REPEALED
05 Payment of share of original cost by petitioners required
06 Power of board to reject or grant petition for inclusion of land--Survey required--REPEALED

DISSOLUTION OF IRRIGATION DISTRICTS

FLOOD IRRIGATION PROJECTS

06 Order establishing water management district
07 Board of Commissioners--Appointment and number
08 Eligibility for appointment to board--Term of office--Filling vacancies--Compensation of commissioners
09 Oath of office--Organization of board of commissioners--Appointment of employees--Meetings
10 Bonds of treasurer and appointive officers
11 Powers and duties of board of commissioners
12 District budget--Tax levy--Financing by special assessment
13 District may issue warrants in anticipation of taxes levied to pay current expenses
14 County treasurer to collect and remit taxes to district treasurer--Deposit of district funds
15 Construction and repair of dam--Proposals for--Presented to whom--Hearing proposals
16 Commission and board of commissioners shall encourage construction of dams and other water control devices
17 Dams constructed within a district shall come under control of board of commissioners.
18 When dams constructed by federal agency under joint control of board of county commissioners and commission
19 May contract with federal and state governments--Local districts, persons and corporations--Acquire property in adjoining states
19.1 Contracts for construction or maintenance of project
20 Exemption of federal agencies from provisions of chapter--Purpose of chapter
21 Financing project through special assessments or partly through special assessments--Apportionment of benefits
22 Financing of special improvements--Procedure
23 Resolution of board to include provision for protesting and refusing authority to make general tax levy in certain cases--Election to be held
24 When assessments may be made
25 Assessment lists
26 Assessment list to be prepared--Contents--Certificate attached to assessment list--Preparation of assessment list and notice of hearing of objection to list--Alteration of assessments at hearing--Limitations--Confirmation of assessment list of board certifying list--Filling
26.1 Reassessment of benefits
27 Correction of errors, and mistakes in special assessments--Regulations governing
28 Certification of assessments to county auditor
28.1 Removal of obstructions to drain--Notice and hearing--Appeal--Injunction
29 Extension of special assessments on tax lists--Collection--Payment to water conservation and flood control district
30 Lien of special assessment
31 Sale of property when general and special assessment taxes are delinquent
32 Warrants--Issuance--When payable--Amounts--Interest--Interest coupons
33 Warrants may be used in making payments on contract--Warrants payable out of fund on which drawn--May be used to pay special assessments
34 Refunding special assessment warrants--Purposes for which such warrants may be issued--Payment of warrants
35 Financial reports--Liability for deficiencies

36 Appeal from decision of commission or board of commissioners--Undertaking--Jurisdiction
37 Appeal from decision of commission or board of commissioners --How to be taken
38 Time for taking appeal from commission or board of commissioners.
39 Filing appeal--Docketing and hearing appeals--Final judgment and sending back
40 State's attorney and attorney general to assist boards--Employment of counsel
41 Construction of bridges and culverts--Cost--REPEALED
42 How district may be dissolved or boundaries altered
43 Proceedings to judicially confirm contracts, special assessments and other acts
44 Penalty for violation of chapter
45 Validating organization and acts of water conservation and flood control districts
46 Drains along and across public roads and railroads
47 Construction of bridges and culverts--Costs
48 Consolidation of water management districts
49 Division of a district

REVETMENT WORKS

61-19-01 Revetment work--Definition
02 Revetment work--When constructed
03 Establishment of revetment project--Petition--Security
04 Revetment work--Action by board of county commissioners--Appointment of engineer
05 Engineer's report--Hearing on petition--Notice
06 Protest of landowners--Construction may be ordered in absence of protest
07 Advertisement for bids specify interest on warrants--Rate limited--Opening bids
08 Bids to be accompanied by check--Forfeiture
09 Bonds
10 Contracts must state time for completing work
11 Contractor--How paid--Retention of ten per cent until completion
12 Work may be done by other methods
13 Assessment funds--Warrants
14 Assessments--How made--Collection
15 Deficiency in assessment fund paid by general tax--Surplus used for repairs
16 Assessment payable any time--Interest ceases
17 Powers of boards of county commissioners in two or more counties

ARTESIAN WELLS

61-20-01 Valve or valves required on artesian well--Flow permitted from artesian wells--Preventing flow
02 Drilling artesian or flowing well--Requirements--Valve below frost level
03 Well clogged to be left open--Application of chapter--Wild wells
04 Penalty for violation of provisions of chapter
05 Township and county assessors shall list all artesian and flowing wells annually--Forwarding data to state water commission
06 Duties of state water commission

07 Enforcement of chapter by state water commission--Appeal
08 Deputy--Appointment by state geologist--Removal--Salary--REPEALED

DRAINAGE PROJECTS

01 Definitions
02 Watercourses, ditches and drains may be constructed, maintained, repaired, improved, or extended
03 Board of drainage commissioners--Appointment--Term--Removal--Compensation
04 State and county officers not eligible as drain commissioners--Matters of personal interest to drain commissioners
05 Powers of board
06 Board's report to board of county commissioners--Contents--Inspection--Liability of drain commissioner on bond
07 Oath and bond filed by drain commissioners--Organization of board--Quorum
08 Office, records, clerk, and employment of personnel
09 Levy for administrative expense--Payment of commissioners' salaries and overhead expense
10 Petition for construction of drain--Purposes of drain--Signers to petition
11 Bond required from petitioners
12 Examination of line for drain--Designation of surveyor--Specifications--Cost estimates
13 Hearing on petition to establish drain and surveyor's report--Notice--Contents
14 Conduct of hearing on petition to establish drain
15 Denying or making order establishing drain--Costs when petition denied
16 Voting right or power of landowners
17 Notice of order establishing drain and period for appeal
18 Appeal to district court--Time--Undertaking--Hearing
19 Right of way--How acquired--Assessment of damages--Issuance of warrants
20 Assessing cost of constructing and maintaining drain
21 Assessment subject to review--Notice of time and place
22 Hearing on assessment--Appeal to state engineer--Correction of assessments--Relocating drain--Fees of state engineer
23 Recording assessment
24 Notice of letting of contracts
25 Letting of contracts for drains
26 Extension of time to contractors--Reletting unfinished part of contract
27 Apportionment and taxation of costs
28 Collection of drain taxes
29 Payment of costs and expenses of locating, constructing, maintaining, and improving drain--Warrants issued
30 Additional assessment to meet deficit or additional expense
31 Drains along and across public roads and railroads
32 Construction of bridges and culverts--Cost
33 Boards of drain commissioners of two or more counties may construct drains through counties
34 Procedure to construct or extend a drain through or into two or more counties

35 Settlement of unpaid warrants
36 Co-operating with drainage boards or officials of other states in drainage matters
37 Drainage boards or commissioners of different states may meet in joint conference to effectuate co-operation
38 Proceedings in drainage matters other than establishment and construction of drains--Establishment of lateral drains
39 Petition for a lateral drain--Bond of petitioners--Penalty
40 Collection of tax or assessment levied not to be enjoined or declared void--Exceptions
41 Establishing new drains in location of invalid or abandoned drain
42 Drain kept open and in repair by board
43 Assessment of costs of cleaning and repairing drains
43.1 Removal of obstructions to drain--Notice and hearing--Appeal--Injunction
44 Reassessment of benefits
45 Contracts for work of cleaning and repairing drains
46 Maximum levy--Accumulation of fund
47 Expenditures in excess of maximum levy
48 Reconveyance of land no longer required for drainage purposes
49 County may pay share of drainage taxes on tax deed lands
50 Drain warrants--Terms and amounts
51 Payment of drain assessments--Interest
52 Lien for and enforcement of drain assessments
53 Drain bonds
54 Sinking funds and bonds
55 Liability for deficiencies--Maintenance of sinking fund
56 Dissolution of drainage district--Return of unexpended assessments
57 Penalty for violation of chapter
58 Existing obligations and regulations
59 City application for joint drain--REPEALED
60 Hearing on city joint drain--REPEALED
61 Payments for city joint drain--REPEALED
62 Board of drain commissioners may apportion assessments for benefits of an established drain against a county, village or city or any tract of land benefited by an established drain
63 Drains having a common outlet may be consolidated
64 Outlets
65 Consolidation of drainage district or districts into water management districts
66 Dissolution prohibited when liabilities outstanding--Disposition of assets.

YELLOWSTONE RIVER COMPACT

61-23-01 Ratification of Yellowstone River Compact between the states of Montana, North Dakota and Wyoming
02 Compact not binding until approved by other states and the congress of the United States--Governor to give notice of ratification

GARRISON DIVERSION CONSERVANCY DISTRICT

61-24-01 Development and utilization of land and water resources declared a public purpose--Declaration of intention--Interpretation

02 Garrison Diversion Conservancy District created
03 Election of directors of the Garrison Diversion Conservancy District
03.1 Filling vacancy of director on general election ballot
04 Compensation of directors
05 Term of office of directors--Oath of office--Bonds
06 Meetings of the board--Quorum--Board to adopt rules, regulations and by-laws.
07 Attorney general shall act as legal adviser--Chief engineer of state water conservation commission to assist board--Employment of counsel and engineers
08 Powers and duties of the district board of directors
09 District budget--Determination of amount to be levied--Adoption of levy--Limitation
10 Certified copies of levy and budget sent to county auditors
11 County auditors to extend tax levy
12 County treasurers to collect and remit district taxes
13 District may enter into contract for the construction, operation and maintenance of works
14 When contract is approved
15 Proceedings to confirm contract
16 County may be excluded from conservancy district if not benefited
17 Appeal from orders of district board
18 Contracting for Roads
19 Easements for Public Lands

CONTROL, PREVENTION, AND ABATEMENT OF POLLUTION OF SURFACE WATERS

61-28-01 Statement of policy
02 Definitions
03 State water pollution prevention agency--Board
04 Powers and duties
05 Rules, regulations and standards
06 Prohibitions
07 Proceedings
08 Penalties--Injunctions

LITTLE MISSOURI STATE SCENIC RIVER ACT

61-21-01 Title
02 Intent
03 Definitions
04 Administration
05 Powers and duties of commission
06 Management

North Dakota State Water Commission, Rules and Regulations of the State Water Commission Governing the Drainage of Water from Ponds, Sloughs, or Lakes Having Watersheds of 40 Acres or Larger, Bismarck, North Dakota, September, 1976, 25 pages.

This publication states those regulations deriving authority from Section 61-01-22 of the North Dakota century code. The regulations cover the following topics:

R61-01-22.1 Intent of rules and regulations
.2 Definitions
.3 Permit required--amendments--exemption
.4 Filing application
.5 Criteria for determining area of watershed
.6 Referral of applications to the appropriate water management district
.7 Applications to drain ponds, sloughs, or lakes of statewide or interdistrict significance
.8 Hearing--Exception
.9 Hearing notice
.10 Action by board of commissioners following hearing
.11 Criteria to determine whether drainage will flood or adversely affect drainage of lower landowners
.12 Return of applications of statewide or interdistrict significance to state engineer-etermination of state engineer
.13 Requirements for a valid permit to drain
.14 Void permits
.15 Procedure upon complaint of violation
.16 Ditches or drains existing for 10 years or more

The North Dakota Environmental Law Enforcement Act of 1975.

The sections establishing this act are as follows:

32-40-01 Short title
02 Legislative intent and purpose
"The legislative assembly of North Dakota enacts this Environmental Law Enforcement Act in recognition of the vital role played by environmental laws in maintaining the health, safety, and general welfare of the state's citizens; the need to maintain a sound system of law, order and justice; and the need to provide relief to those aggrieved by a failure of others to abide by or enforce the state's environmental laws."
03 Definitions
04 Cumulative remedies
05 Enforcement powers of attorney general
06 Who may sue--Defendants--Exception to recovery of damages
07 Notice to be provided
08 Bond
09 Intervention in action
10 Costs
11 Relief granted

APPENDIX E

CITIZENS INPUT WORKSHOP

APPENDIX E

CITIZENS INPUT WORKSHOP

On June 27, 1977, the Lake Agassiz Regional Council held [illegible] Input Workshop on the Sheyenne River valley and flood control. [illegible] problems were identified and ranked in the order of their priori[illegible] (H), Medium (M) and Low (L). The results of this workshop are li[illegible] follows:

Problem or Need	Pr[illegible]
Flood Plain Development, Residential Commercial	
Uncontrolled Stream Drainage	H
Water Release Problems from Baldhill Dam	
Overall Drainage Problems in the Harwood Area	
Need for a Hydrology Study of Drainage Areas	H
Flooding in Red River Valley and Basin	H
Farmland Drainage How to Control It	H
Overflowing of Cass County Drains No. 45, 21 & 13	H
West Fargo, Commercial & Residential Flooding	H
Agriculture Flooding--Kindred to Red	H
Maple River Contribution to Flooding	M
Erosion, Agricultural	
Rush River--Contribution to flooding	
Erosion, Stream Bank, West Fargo	
Erosion, Road and Bridge	
Harwood and Surrounding Area Flood Problems, Residential, Agriculture, Road and R.R.	
Argusville Drain No. 13 Overflowing	
Need for Hydrology Study of Entire Sheyenne Basin	H
Need for Hydrology Study of Road System	
Urban Flooding of Kindred	
Urban Flooding of Horace	
Urban Flooding of Lisbon	H
Urban Flooding of Valley City	
Urban Flooding of Fort Ransom	
Urban Flooding of Argusville	H
Township Flooding of Norman, Cass	H
Township Flooding of Freeman, Richland	
Development in Floodplain Reducing Stream Flow Capacity	
Overland Flooding in Sheyenne Basin	
Problem with High Water Table in Richland and Ransom Counties	

Problem or Need	Priority
Need to Determine the Effect of Urbanization on Sheyenne Flooding	M
How Can We hold Water Back in the Headwaters to Recharge Ground Water	M
Protecting Development in Flood Plain	M
Culvert Opening too Large in Roads and Drains	M
High Water in Sheyenne Renders Drainage System Ineffective and Allows Backflows	M
Pollution of Wells	L
Urban Flooding of Fargo	L
Urban Flooding of Kathryn	L
Township Flooding of Helendale	L
Flood Damages to Wildlife Habitat	L
Determine Feasibility of Increasing Holding Capacity of Baldhill Dam	L
Social Impacts (caused by flooding)	L
Recreational Losses	L
Health Problems (insect, well contamination)	L
Impact of Future Economic (property values, rural, urban) and Urban Development	L

STRUCTURAL ALTERNATIVES

Diking in flood plain area when it has no detrimental effects elsewhere.
Construction of Kindred Dam.
Diking around West Fargo.
Diversion of water around West Fargo.
Divert Sheyenne into Wild Rice three miles east of Kindred.

Raise the elevation of Baldhill Dam.
Divert Sheyenne to Bear Creek which flows into the James River.
Retention structures, dams above valley.
Channel improvement on Sheyenne and Maple.
Small retention dams on Maple River.

Enlarge drains 21, 13, and 45 in Cass County (control gates & maintenance).
Install retention control structures on drains
Snagging and clearing of rivers and tributaries.
Rebuild structures (such as highways and bridges) found to affect flooding.
Increase storage capacity of wetlands to retain water.

Divert Sheyenne River into the James River in the Lisbon area.
Construction of storage reservoirs above and below Enderlin on Maple River.
Dams in the coulees to the north of Sheyenne Delta escarpment.
Construct dams on tributaries of Baldhill Creek to stabilize flows.
Diversion of Sheyenne into Rose Coulee

Diversion of Sheyenne into Wild Rice's lower reaches.
Re-evaluate and open the natural by-pass channels

NON-STRUCTURAL ALTERNATIVES

Flood plain zoning and enforcement.
Relocation of most affected structures.
No replacement of obsolete homes in flood plain.
Plan for development outside of flood plain.
Study the effects of large reservoirs on water tables.

Stricter enforcement of drainage laws.
Development of basin-wide drainage plan.
Study of other rivers (than Sheyenne) causing flood problems.
Create a regional or basin water planning approach.
A program with financial incentives to retain water on farmland.

Study the effects of the Maple River on flooding.
Fall release of water from Baldhill Dam or better management.
Public purchase of land in flood plain and establish green belts.
Flood plain zoning township level
Study the effects of drainage.

Better legislation to control drainage.
Need basic geological survey to determine drainage problems.
Hydrological study of entire Red River Basin.
Economic study of basin.
Sociological study of basin.

Programs or legislation to encourage small retention dams.
Evacuation of developments of flood plain.
Provide flood insurance in flood plain.
Hydrological study on the effects of drainage.
Better land use planning.
Eliminate flood insurance for future construction.

IDENTIFIED PROBLEMS AND NEEDS: RECREATION, WILDLIFE, HISTORICAL

Problem or Need	Priority
Preservation of Sandhill Environment	H
Wildlife Habitat Preservation	H
Preservation of Prairie Chicken Habitat	H
Preservation of Duck Habitat	H
Preserve Woodland of Sheyenne Basin	H
Need to Reduce Conflicts Between Recreation and Multiple Purpose Uses	H
Private Landowners and Liable for Accidents on Private Land and are not Compensated for Recreational Use	H
Need to Determine Value of Small Springs coming into Sheyenne	H
Need to Determine Economic Value of Recreation to Area	H
Need to Maintain Unique Areas	H
Need to Improve Trapping	H
Need for Land Based Recreation in Sandhills	M
Preserve Scenic Values of Sheyenne Basin	M
Wildlife Habitat Preservation (of deer)	M
Need for Improved Forestry Management	M
Need for Preservation at Little Yellowstone Fort Ransom Area	M
Study, Identify and Preserve Archeological and Historical Resources	M
Develop Suitable Areas for Off-Road Recreation Vehicles in Sandhills Area	M
Obstructions in River Prevent Canoeing	M
Need to Develop Hiking Trails	M

Problem or Need	Priority
Need to Determine Value of Natural Vegetation in Sheyenne Basin	M
Need for Better Recreational Planning in the Area	M
Need to Improve Hunting	M
Need to Improve Fishing	M
Need to Develop Water Based Recreation--Sheyenne Basin	L
Public Acquisition & Preservation of Selected Lands for Recreational Use	L
Better Identification of Public Areas with Signs	L
Need for More Camping Facilities	L
Need to Develop Fort Ransom Park	L
Preserve Mirror Pool Area	L
Need to Determine Possible Effect of North Country Trail	L

SUGGESTED ALTERNATIVE SOLUTIONS: RECREATION WILDLIFE, HISTORICAL

Develop more refuges and game management areas.
Restrict drainage of wetlands
Reactivate a soil bank program.
Expand wetland easement program.
Develop a program to preserve unique areas.

Develop a deer management plan for Sheyenne Basin.
Publicize existing recreational areas.
Construct small water impoundments for water recreation.
Clean up existing water areas.
Leave things as they are.

Development of primitive campsite areas.
Designation of Sheyenne as a scenic river.
Support programs for wildlife preservation.
Restore Fort Ransom historical sites.

IDENTIFIED PROBLEMS AND NEEDS: WATER QUALITY, QUANTITY AND OTHER

Problem or Need	Priority
Drainage Contributing to Degradation of Water Quality in Lower Sheyenne	H
Need to Stabilize Flow	H
Need for Improved Sewage Treatment Systems	H
Up-Stream Polluters Have No Concern for Downstream Neighbors	H
Need to Determine Causes for Poor Water Quality	H
Dead Animals Dumped into River	H
Feedlot Runoff into Sheyenne River	H
Fort Ransom Dumping Sewage into River	H
Increased Residential Building in Rural Areas adding to Lowering Water Quality	H
Need to Preserve Natural Purification Areas in the Sheyenne Basin	H

AD-A143 699 AN INSTITUTIONAL ANALYSIS OF THE LOWER SHEYENNE RIVER 3/3
BASIN NORTH DAKOTA:... (U) CONCORDIA COLL MOORHEAD MN
L L FALK ET AL. 30 SEP 77 DACW37-77-C-0100

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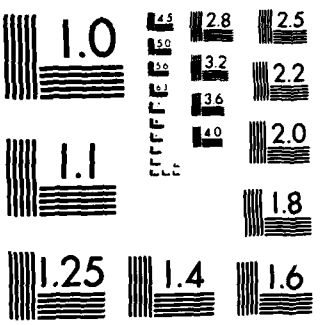


Problem or Need	Priority
Need to Coordinate Garrison and Sheyenne River Planning	H
High Water Tables Cause Problems	H
Need to Retain Surface Water Supplies	H
Declining Underground Water Supplies	H
Bad Effects on Fish from Dissolved Solids in Lake Ashtabula	H
Inadequate Urban Water Supply	M
A. Fargo	M
B. Moorhead	M
C. West Fargo	M
Need to Improve Water Quality in Lake Ashtabula	M
Need to Raise Water Quality Standards for Streams	M
Poor Water Quality in Lower Sheyenne River and Tributaries	M
Excessive Use of Fertilizers	M
Problem in Meeting Canada's Quality Standards	M
Limit Economic Growth to Amount of Available Water	M
4-H Camp Dumping Sewage into River	M
Inadequate Rural Water Supplies	M
Aquifer Contamination from Irrigation Runoff	M
Poor Water Quality Adversely Affects Soil and Livestock	M

SUGGESTED ALTERNATIVE SOLUTIONS: WATER QUALITY, QUANTITY, & OTHER

Water Quality Alternatives

Enforcement of water quality laws;
Education program to inform people of causes of poor water quality.
Preservation of natural land filters.
Improvement of municipal sewage treatment facilities.
Management programs for feedlot control.
Improve agricultural land management.

Water Quantity Alternatives

Place restrictions on amount of water used by Fargo-West Fargo.
No per gallon charge on water in Fargo to prevent the city from using water supply as a source of revenue.
Develop holding basins to retain surface water supplies.
Develop new low level dams along river and tributaries.

APPENDIX F

SCOPE OF WORK FOR AN INSTITUTIONAL ANALYSIS OF THE LOWER SHEYENNE RIVER BASIN, NORTH DAKOTA

APPENDIX F

SCOPE OF WORK FOR AN INSTITUTIONAL ANALYSIS OF THE LOWER SHEYENNE RIVER BASIN, NORTH DAKOTA

1. Introduction

1.01 The Contractor will conduct an institutinnal analysis, as defined in this scope of work, for a study of water problems and related land use in the lower Sheyenne River Basin of North Dakota. The St. Paul District of the U.S. Army Corps of Engineers is engaged in a Reformulation Study of water problems of the study area concerning 1) flood control, 2) water supply, 3) water quality, 4) land use, 5) floodplain regulation, 6) fish and wildlife, and 7) other related natural resources. The accomplishment of an institutional analysis is stipulated in planning regulations and guidance as a necessary and required step in the planning study process.

1.02 The planning regulations and guidance requiring an institutional analysis make explicit the defining operations of this analytical step in the planning process. The steps in the planning and study processes of the institutional analysis are given in ER 1105-2-22, Planning: Urban Studies Program. Accordingly, the analysis performed by the Contractor will consist of: 1) list of organizations; 2) description of (a) legal authorities, (b) policies, and (c) programs; 3) indication of impediments and constraints set by organizations, political arrangements and customs.

1.03 The purposes of the institutional analysis are represented in the several functions which it provides to the selection and design of a planning alternative which can actually be implemented. The implementability of a plan is evaluated by the following criteria: 1) capability of existing institutions to meet plan requirements; 2) acceptability of changes in local arrangements and procedures involving functions of organizations and inter-organizational relations; 3) financial, legal, and technological feasibility; 4) political and social acceptability.

1.04 The research approach of the Contractor will be empirical and quantitative to the fullest extent consistent with the general research design suggested by this scope of work, as may be amended by the contract negotiation process. No assertion of fact will be made without supporting evidence based on primary observation or documented secondary data.. Where speculation about possible states or futures are necessary, probabilities will be explicitly estimated. Qualitative information and value issues should be rigorously and precisely treated to the maximum extent permitted by the subject matter. An unstructured style, unsupported by points of evidence, is unacceptable.

1.05 The extent and character of the work to be accomplished by the Contractor will be subject to the general supervision, direction, control, and approval of the Contracting Officer.

2. General Performance Specifications

2.01 Interview Technique for Primary Data. The collection of primary data on the characteristics of organizations, groups, and associations and on their collective perceptions, preferences, and behavioral dispositions will be done by means of direct interviewing. Those interviewed will be the key officers, leaders, or representatives of highest accessible rank. The interviews will be conducted with a highly structured printed interview schedule form. To the maximum extent possible, each item will be constructed with closed answer categories so that only those items requiring probes for information to clarify an initial answer will be "open-ended." The answer categories will be at the highest level of measurement made possible by the question, to facilitate a precise interpretation of the data. In no case, excepting refusal of face-to-face meeting, or consent of the Contracting Officer, will the interview form be administered by mail. In cases of refusal, reason for the refusal will be documented.

2.02 Validation by Secondary Data. The Contractor will make a best effort to check and validate primary interview data by consulting published sources for factual and/or logical congruence. Examples of such sources are government documents, reference works and newspaper archives. When secondary data are not available, the use of expert informants or consultants may be appropriate. In such cases, informants will be named, their expertise documented, organizational ties specified, and any vested interests indicated.

2.03 Regional Information Source Contacts. Upon initiation of work for this contract, two organizations having comprehensive scope of surveillance and responsibility for water and other natural resources in the study area will be contacted. These organizations are: 1) The Lake Agassiz Regional Council, and 2) The North Dakota State Water Commission. Contact at a minimum, will consist of: 1) informing the officers of these organizations of the study intended by the Contractor, and 2) requesting lists of relevant organizations and inventories of law which may be a systematically organized part of the information base of these two organizations. The Contractor will also explicitly ask the continuing consultation, advice and cooperation of these two organizations in the conduct of this study.

2.04 Data Analysis. The presentation of information will be quantitative to the full extent made possible by having earlier met the specifications of this scope of work on the topics of measurement and interview item construction. The objective of this study is to provide information of a descriptive kind which will be a complete and reliable basis for planning decisions. It is also the expectation of the Contracting Officer that the Contractor will develop an analysis and interpret any apparent causal relationships perceived in the data which might, in the Contractor's professional judgement, have bearing on decision-making.

2.05 Data Presentation Format. Data will be presented in numerical and/or graphic display formats accompanied by rigorously interpretive text meeting the standards of professional journals. Examples applicable to the content of this study are: the Administrative Science Quarterly, the American Sociological Review, and the Journal of Applied Psychology.

3. Report Requirements

3.01 Structure of the Report. The study report will consist of: an abstract, table of contents, an introduction, six substantive sections, summary and conclusions section, a bibliography, and appendices. The six substantive sections will be: 1) Descriptive Inventory of Organizations, 2) Review of Water Resources and Related Land Use Legislation, 3) Organizational Responsibility and Objectives, 4) Organizational Perceptions, 5) Assessments of Other Organizations, and 6) Organizational Interrelations. The following sections contain a rough lay-out of the substantive content and framework of the major tasks.

3.02 The Abstract. The abstract will be a synopsis of the report stating the scope of work and the general conclusions which have emerged from the study.

3.03 The Table of Contents. The table of contents will present all major sections and subsections in outline format with both sections and page numbers appropriate to the introduction, report body, and appendices.

3.04 The Introduction. The introduction will include, but need not be limited to the following: 1) definition of institutional analysis, 2) the purpose and authority for the study, 3) a brief description of the study area encompassed by the lower Sheyenne River Basin, 4) a short characterization of the content and purpose of each major substantive section clarifying the rationale for its contribution to the general purposes of the study, 5) a statement of the research style and practices of the principal investigator and any pertinent assumptions unique to this particular investigation, and 6) a statement of the general methodological orientation spanning the work of all sections. A statement will direct readers to find the explanation of specific applied methods in each substantive section.

3.05 Descriptive Inventory of Organizations. An organizational inventory incorporating a number of descriptors will be compiled. This descriptive inventory will include all organizations, groups, and associations having jurisdiction, interest, or other potential for involvement in water resources planning within the geographic boundary of the study area.

The definition of the term "organization", for the purposes of this study, is to be more inclusive than the restrictive one denoted by the modifier "formal" as it is understood by contemporary practitioners of organizational systems and behavior research.

Criteria of definition for the more restricted category of "formal organizations" would include instances of institutionalized human association having one or more of the following attributes: 1) collective name, 2) legal existence, 3) written charter, 4) list of membership, 5) set of officers, 6) an administrative support system, 7) physical equipment, 8) occasions of assembly, or 9) a set of explicit goals. In addition to these instances of clearly structured institutionalized behavior the investigation mandated by this scope of work will encompass any instance of collective behavior which meets the following minimal criteria. A "group" need only be a group in the strict sociological sense of having conjointly: 1) a shared goal, interest or perspective; 2) mutual awareness among members, and 3) active association in communication or cooperative behavior, whether or not actually meeting. Accordingly, the inventory will include informal voluntary associations and interest groups, as well as formalized organizations.

Suggested organizational categories might include but not be limited to the following:

-Governmental agencies
-Civic groups
-Environmental groups
-Recreational associations
-Businesses
-Professional societies
-Occupational associations
-Issue groups
-Co-op organizations
-Service organizations

Characteristics of local and regional organizations which will benefit planning include the following:

-Staff expertise (incl. consultants)
-Scope of jurisdiction
-Project specific or permanent
-Size (1) by membership, (2) by budget
-Funding (source)
-Organizational chart and officers (displayed in appendix)
-Voluntary or paid relationship of members to the organization (if voluntary, is there a paid permanent staff? How many?)
-Physical location

It is suggested that this first section for organizational inventory of the study area consist primarily of crosstabular display accompanied by commentary on the general institutional/organizational characteristics of the study area.

The following are the suggested minimum of organizations to be interviewed. The maximum number of organizations to be interviewed should not exceed approximately thirty-five. The final set of organizations to be interviewed will be subject to the prior approval of the Contracting Officer.

Barnes County Township Association
Barnes County Water Management Board

Bureau of Outdoor Recreation
Cass County Township Association
Cass County Water Management Board
City of Fargo
City of Lisbon
City of West Fargo
Environmental Interests
Lake Agassiz Regional Council
Lower Sheyenne Flood Control
National Audubon Society
North Dakota Soil Conservation Committee
North Dakota State Game and Fish Department
North Dakota State Park Service
North Dakota State Planning Agency
North Dakota State Water Commission
North Dakota Wildlife Federation
Ransom County Township Association
Ransom County Water Management Board
Red River Regional Council
Richland County Township Association
Richland County Water Management Board
Sheyenne Valley Association
Sheyenne Valley Grazing Association
Souris-Red-Rainy, Minnesota
Souris-Red-Rainy, North Dakota
S. Central Dakota Regional Council
Valley City
Water Users Association, Fargo and West Fargo

3.06 Review of Water Resources and Related Land Use Legislation. An inventory and analysis of water resources and related land use legislation pertaining to the study area will be developed. Laws, regulations and ordinances reviewed will include all those having jurisdiction in the study area and originating from municipal, county, State, and Federal authority. These enactments will be displayed by their content in the categories indicated in the headings of the table given in figure 3.1 of the Institutional Analysis Appendix, Binghamton Wastewater Management Study, Corps of Engineers, June 1976.

An appendix to the study report will consist of the official summary statements of the law. The body of the report will contain annotative explanations of laws, cited by title. These explanations will include summary, originating authority, enforcement provisions, and any implications for design considerations of the study. The emphasis and detail of this task will be directed toward State and local statutes.

Advice on sources for compiling this inventory of laws, regulations, and ordinances will be sought first from the Lake Agassiz Regional Council and From the North Dakota State Water Commission.

Care will be taken to devise criteria for quickly identifying only that subset of Federal and State enactments which directly apply to the study area and its specific water and other natural resource problems as addressed in the context of this study.

3.07 Organizational Responsibilities and Objectives. This section of the report should contain a description of how organizations interpret the legal obligations profiled in the immediately preceding section. Their customary functions, with special focus on how these functions are translated as goals and policy orientations, should also be described.

At a minimum, this section should include measurement and analysis of the organizational attributes and behavioral dispositions indicated by the outline of variables shown below.

A. Perceived water resources responsibilities

1. Funding obligations
2. Regulatory functions
3. Implementation support
4. Maintenance

B. Policy orientations

From these measurements of organizational perceptions, responsibilities, and preferences the Contractor will be responsible for presenting conditions which will set the contributions and constraints of participating organizations in the area to the planning study. The tasks of this section will be accomplished by the direct administration of a structured interview form to key officers of organizations. In all possible instances interview data will be validated by documents and other secondary sources.

3.08 Organizational Perceptions. Information on organizationally perceived opportunities and costs involved in area problems and potential solutions is requested below.

A. From the perspective of your organizational responsibilities and interests, identify the water resource and related problems in this area.

B. What are the potential effects of possible solutions to each of these problems in terms of outcomes for your organization?

1. Gain of new function, property, revenue
2. Loss of function, property, revenue
   a. Absolute
   b. Compensated
   c. Fair and equitable
3. No effect

3.09 Assessments of Other Organizations. The purpose of this research task is to discover the perspective of each organization toward other organizations in the context of their potential roles in the study and resolution of problems relating to water and other natural resources in the lower Sheyenne River Basin.

The rationale for the items suggested below is to measure and assess the perceptions of organizational representatives concerning the institutional environment in which they function.

A. List of other organizations considered significant to the study and resolution of area water resource and related problems.

B. Perception of effects on other organizations arising from probable solutions to each problem.

1. Loss of function, property, revenue
2. Gain of function, property, revenue
3. No effect on other organizations

3.10 Organizational Interrelations. The substance of this section will be designed to assess the network of responsibility and participation of all organizations in water and related land resource decision-making activities. Interrelations among the organizations identified in 3.05 will be developed on the basis of the partial list of suggested criteria below.

A. List of major organizational functions/tasks

1. For each function; to which of the other significant organizations does this organization have a reporting obligation?
2. With which of the other organizations does this organization maintain ongoing communication for the purpose of coordination in particular functions?
3. For each major function/task of this organization which other organizations have responsibility for the same function/task within the same jurisdictional boundaries, in whole or in part?

    a. In law
    b. In practice

B. Will participation by this organization in the planning study consist primarily of direct contact with the Corps, or of indirect relations with the Corps, through other organizations? (If primarily indirect, which organizations will mediate?)

3.11 The final part of the body of the report will be the Summary and Conclusions section. In addition to implied content, it will contain

any recommendations which the Contractor may consider helpful to the best use and development of area institutional arrangements for water resources study and planning in the lower Sheyenne River Basin.

3.12 Bibliography. The bibliography will present all secondary data sources utilized in the execution of this contract study. The bibliography will also contain references to source works supporting research design, methods, and data analysis for the purpose of documenting compliance with accepted practices in contemporary organizational research. The method of presentation will be in accord with that of professional research journals. Examples can be found in the publications specified in 2.06.

3.13 Appendices. The appendices will contain: 1) a copy of the interview form, 2) a coding document, 3) a methodological discussion, and, 4) official summaries of laws inventoried.

4. Format and Materials Specifications

4.01 Text materials will be typed on bond paper, 8.5 inches by 11.0 inches, with a 1.5-inch margin on the left side, 1-inch margins on the top and right and 1.5-inch margin at the bottom.

4.02 Information will be presented in textual, tabular, and graphic forms, whichever is most appropriate, effective and advantageous to communicate the necessary information.

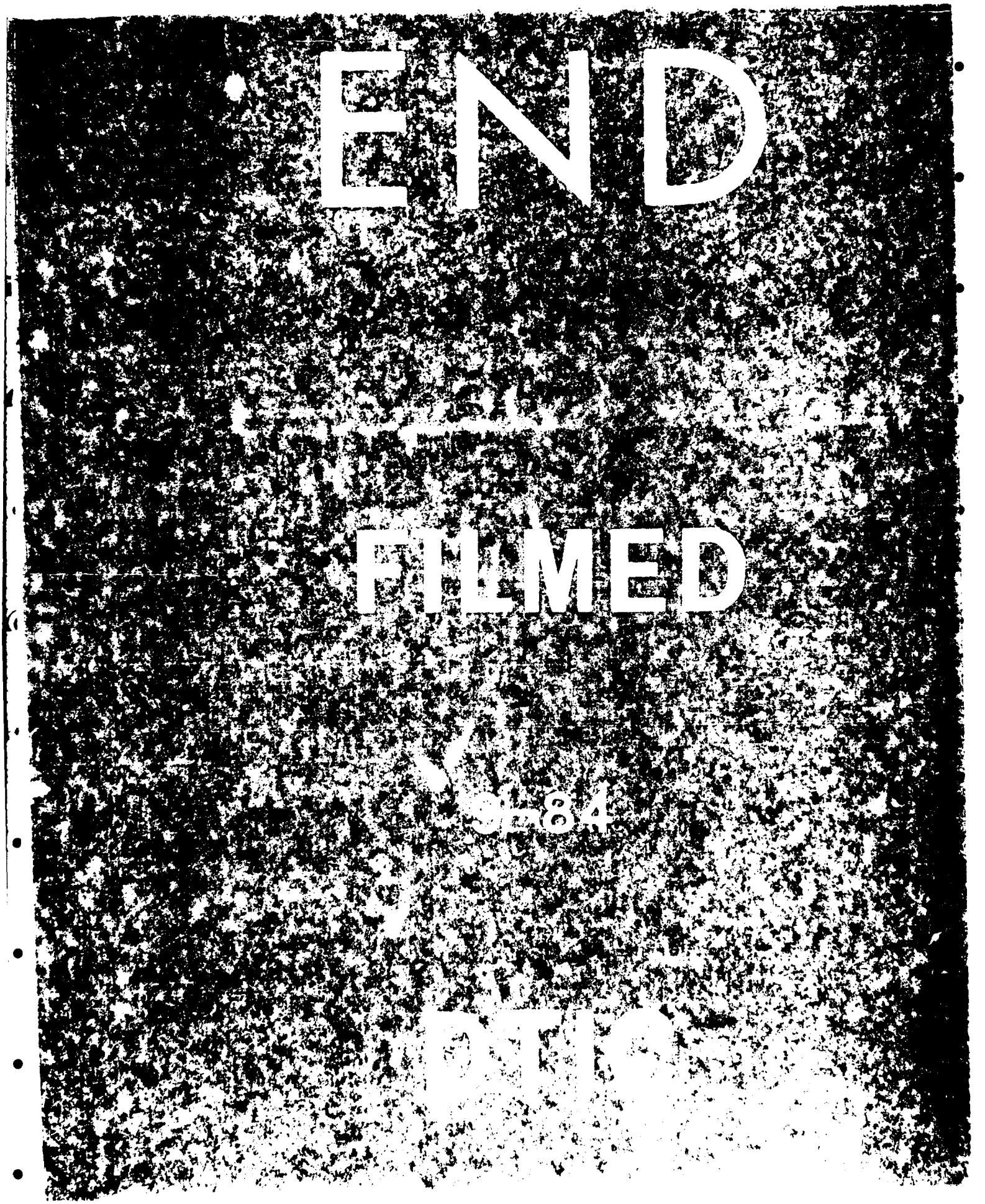
4.03 The title page of the report will carry an appropriate inscription indicating the source of funds used to conduct the work, the contract number, the name of the principal investigator, and the date.

4.04 All figures must be readily reproducible by standard xerographic equipment.

4.05 The Contractor will furnish the labor, supplies and equipment needed to complete the study and to produce the report on the reconnaissance as outlined in this scope of work.

4.06 The Contractor will submit 10 copies of a draft report. The Contractor will submit one original and 15 copies of the final report which will include appropriate revisions in response to the Contracting Officer's comments, within 30 days of receipt of those comments.

4.07 Neither the Contractor nor his/her representatives will release or publish any sketch, photograph, report, or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer.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